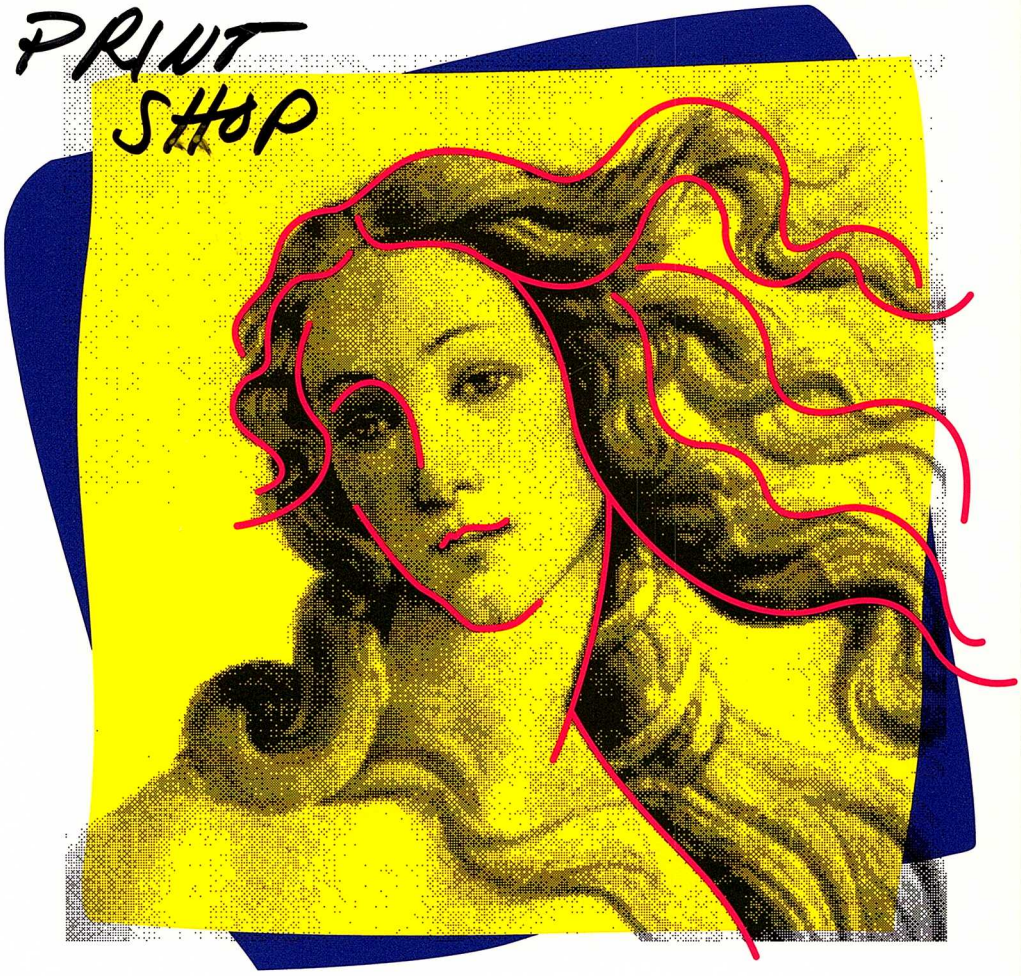

Color Guide

ILLUSTRATOR

Adobe Illustrator®

Macintosh Version 3

Adobe Illustrator®

Color Guide

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Contents

Introduction

The Adobe Illustrator™ program lets you create color illustrations using the four process colors (cyan, magenta, yellow, and black), the PANTONE MATCHING SYSTEM, or other ink colors that you create. Using the Adobe Separator program, included with the Adobe Illustrator program, you can print these illustrations—and other Encapsulated PostScript files—as negatives that an offset printer can use to print color reproductions of your work.

If you are planning to do extensive work with color, you will probably want to use a color monitor. You can, however, produce color images on a black-and-white system, although you won't be able to preview your work in color on the screen. The colors you assign will instead appear in appropriate shades of gray, and you will need to do all of your proofing on a color printer. (If you have a color monitor, you will want to adjust it so that the colors on the display approximate those in your printed output as closely as possible. To help you get the best results, the Adobe Illustrator program lets you control the appearance of your artwork on a color monitor without adjusting the device.)

About this manual

This manual tells you how to use the color features of the Adobe Illustrator program, and how to use the Adobe Separator program to produce color separation negatives. Section 1 gives a brief overview of the color design and printing processes; it describes how to adjust the color display and how to assign colors in the Adobe Illustrator program. Section 2 tells you how to use the Adobe Separator program to produce color separation negatives, and how to print comps (comprehensive drafts).

For a list of the equipment needed to run the Adobe Illustrator program, see "Before You Begin" in the *Adobe Illustrator User Guide*. For information on using the other features of Adobe Illustrator, see the *Adobe Illustrator User Guide* or the *Adobe Illustrator Tutorial*.

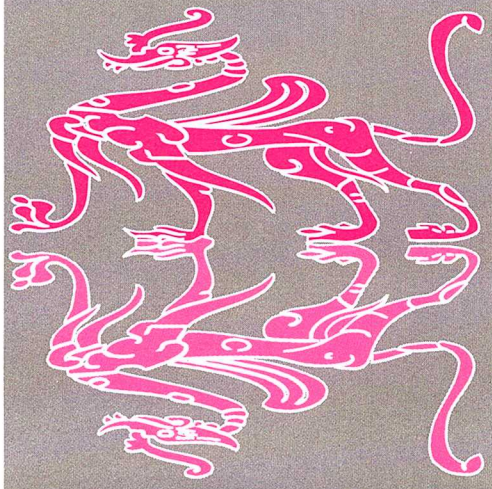
Because of the complexity of offset printing, a full description of the process of color printing is beyond the scope of this manual. An overview of the process is provided in Chapter 1, "Working with Color." If you are new to printing, consult the suggested reading at the end of this manual before you attempt to work with color. These are good sources of basic information about design, production, and printing.

It is also suggested that you work closely with your local print shop, consulting them before and after you begin each job. Do not attempt any color printing jobs until you are thoroughly familiar with the basics of printing.

What's new in Adobe Separator

The Adobe Separator program includes several new features. If your file includes a preview screen, you can view the preview image while in the Adobe Separator program. You can adjust the bounding box and reposition the image on the page using the mouse. You can also add or remove register marks, color bars, labels, and crop marks. If you need to know with which program an EPS document was created, or whether a file contains Encapsulated PostScript (EPS) files, or various fonts, the Adobe Separator program now includes a Get Info feature designed to provide specific file information that may be needed before printing.

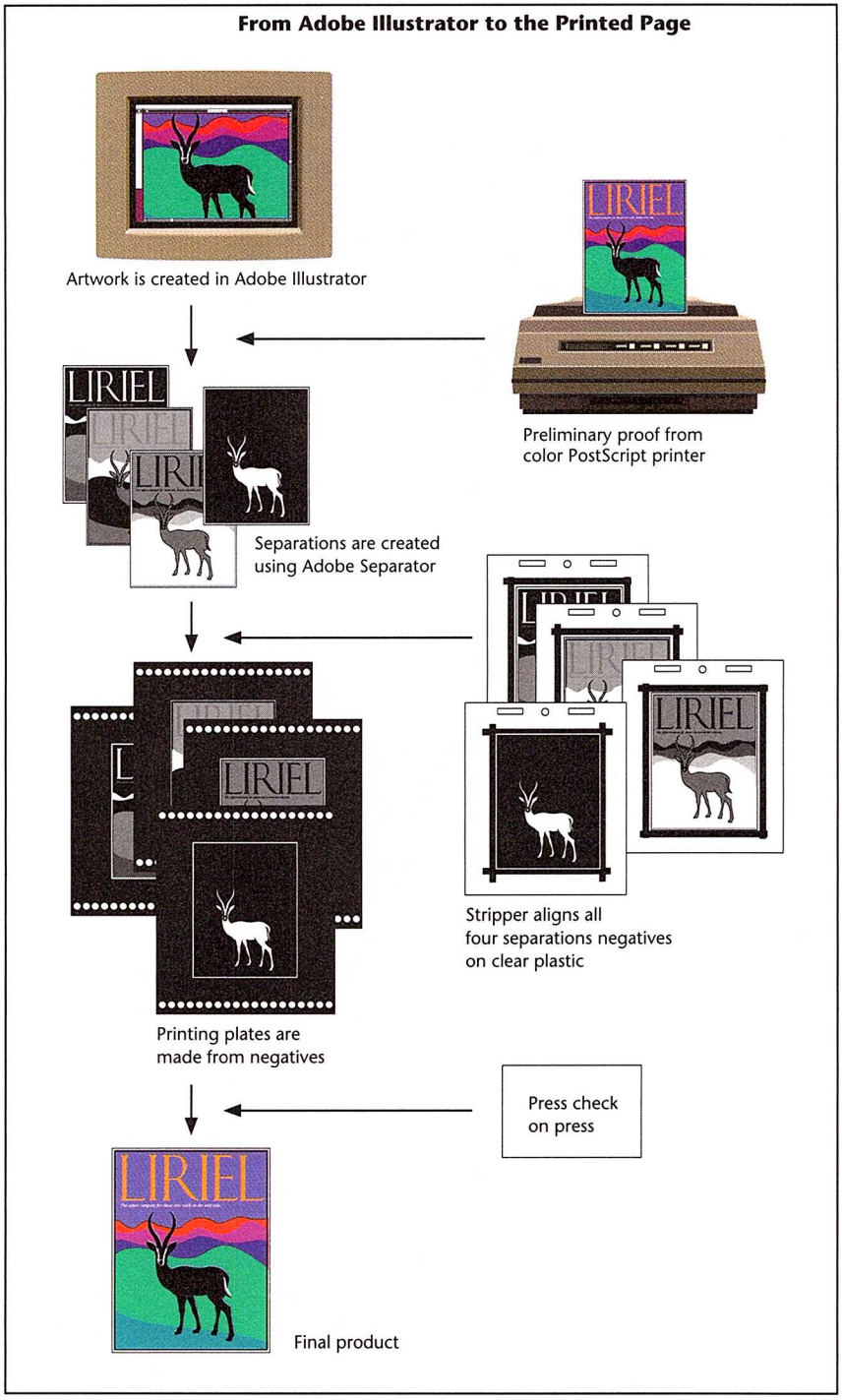
Section 1



Chapter 1: *Working with Color*

Color printing is one of the most complex and least understood aspects of the graphic arts. Graphic artists are more likely to get the results they desire from printed work if they understand the process of color printing. With the advent of desktop publishing, a working knowledge of printing has become more important than ever to the graphic artist.

This chapter charts the typical steps involved in the printing of a process color job. A detailed examination of this process, however, is beyond the scope of this manual. For more information on the printing process, see the suggested reading at the end of the manual.


From Adobe Illustrator to the Printed Page
Artwork is created in Adobe Illustrator
LIRIEL
Preliminary proof from color PostScript printer
LIRIEL
Separations are created using Adobe Separator
LIRIEL
Stripper aligns all four separations negatives on clear plastic
LIRIEL
Printing plates are made from negatives
Press check on press
LIRIEL
Final product

About process color

If you look closely at the color illustrations in this book, you will notice that they are made up, not of solid colors, but of dots. Every ink color requires a separate mask, plate, and printing. If an illustration contains more than four colors, the cost of printing each color in a matching ink color becomes prohibitively high. Colors are therefore created by using varying screen percentages of cyan, yellow, magenta, and black (CYMK). These are called the *process colors*, and with them you can create a wide range of colors.

To fully understand color separation, you must first understand what happens to a color when it is screened. How light a color appears is controlled by the screen percentage. Black ink printed as a 10-percent screen appears to the eye as a light gray. The ink is black, but the screen creates an optical illusion of a lighter shade.

The same thing happens when screened colors are printed on top of each other. Your eyes do not notice the dots because the dots are too small. The colors combine to form another color. Each of the four colors is printed at a different angle to prevent what is known as a *moiré pattern*, a distracting pattern that ruins the desired effect.

Creating colors with the Adobe Illustrator program

The Adobe Illustrator program uses the CYMK, or process color, model to create colors. If, for example, you want to print an orange color, you use a color combination that is predominantly magenta and yellow. You can also create your own custom colors, or use the PANTONE MATCHING SYSTEM to create colors. (For more information on the use of custom colors, see Chapter 3, "Assigning Colors with the Adobe Illustrator Program.")

After your illustration is completed, you can send it to a PostScript color printer for a general idea of how the final results will look. When you are satisfied with the appearance of the illustration, you can use the Adobe Separator program to create the four-color separation negatives.

Saving Adobe Illustrator documents for separation

The Adobe Illustrator program lets you save your documents in one of five different preview formats: None (Omit EPSF Header), None (Include EPSF Header), Black&White Macintosh™, Color Macintosh™, and IBM PC®. The Adobe Separator program cannot recognize Adobe Illustrator files that are saved using the "None (Omit EPSF Header)" format. The Adobe Separator program will recognize Adobe Illustrator files that are saved using the "None (Include EPSF Header)" format, but you won't be able to preview the document in the Adobe Separator program. For the best results, save your documents in either the Black&White Macintosh™ format or the Color Macintosh™ format.

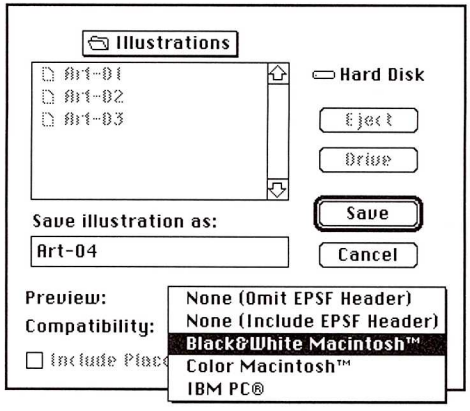
To save Adobe Illustrator files for separation:

1. From the Adobe Illustrator program, choose Save from the File menu.

   The Save As dialog box appears.

2. Click inside the Preview field and hold down the mouse button.

   A pop-up menu appears showing the available preview formats.



3. Drag until the preview format you want is selected and release the mouse button.
4. Enter the name of the document and click Save.

Creating separations with the Adobe Separator program

Adobe Separator takes the colors you have specified in your documents and prints them as four separate pieces of film. A block of type that you have specified as 10-percent cyan, 40-percent magenta, and 10-percent yellow, will print as three separate negatives: one marked cyan with a 10-percent screen tint, one marked magenta with a 40-percent screen tint, and one marked yellow with a 10-percent screen tint.

Your print shop takes these negatives and aligns them using the register marks and star targets printed on the negatives. The aligned negatives are then used to make printing plates for the press. Alignment and screen angles are extremely important for obtaining good results. The screen angles used by Adobe Separator are carefully chosen to avoid moiré patterns. The register marks and star targets printed on each separation ensure accurate alignment.

After you have made your separation negatives, you should send them to the print shop for intermediate proofs. These proofs, either the transfer type or the overlay type, will give you a better idea than the color laser printer proofs of the final printed results.

In the print shop

To better understand the color model used by the Adobe Illustrator program and the Adobe Separator program, you should know what happens to the negatives after you send them to the print shop. The first person to receive the negatives is the stripper. The stripper takes the negatives and tapes each one to a piece of clear plastic. The stripper then creates a mask using orange plastic to mask out everything that should not print. If the separations are to be combined with other graphic elements, such as text, photographs, or other four-color separations, the stripper also tapes these into position, based on your specifications.

After all of the negatives are taped into position, the print shop makes a final proof. If no corrections or changes are needed, the job goes to the platemaker. The plastic the stripper uses has been punched in a special way so that when the separations are placed on register pins the negatives will fall into the correct position on each plate. Printing plates, like film, are photosensitive. The platemaker places the masked separations over the plates and exposes them to bright light.

Finally, the plates go to the pressperson. On a four-color press, the pressperson puts the plate for each color on the corresponding section of the press. The ink colors are applied to the paper consecutively. The usual printing order is yellow, magenta, cyan, and black.

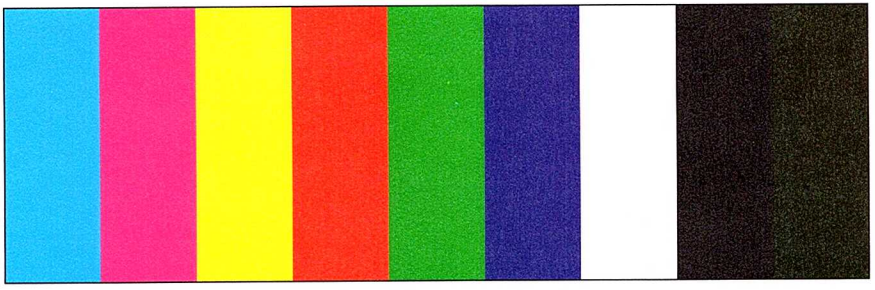
After the job is printed, it may then go to the bindery for other modifications, such as cutting, folding, stitching (that is, stapling), or binding.

In the past (before the Adobe Illustrator program and the Adobe Separator program), the only way graphic artists could specify color components was either to indicate the color breaks on a tissue overlay (and hope that the stripper didn't make any mistakes) or to laboriously hand-cut each color component on a separate overlay. Because Adobe Illustrator lets you specify the color of each object when you create it, the chances of error are now much smaller.

Chapter 2: *Working with a Color Monitor*

If you are using a color monitor, you will want the appearance of documents on your monitor to match the printed output as closely as possible. Because of differences in monitors, factory settings, and other factors, no two monitors are exactly alike. Similarly, different print shops use different brands of ink, which will also affect the appearance of your artwork when it is printed. With the Adobe Illustrator program, you can adjust the video display from within the program without changing the internal settings of the monitor.

To adjust your color display, you should have a sample progressive color bar from your print shop with separate squares showing the four process colors, plus the following combinations: magenta/yellow, cyan/yellow, cyan/magenta, and cyan/magenta/yellow. You should also have a sample of the paper on which you intend to print your job.



Progressive color bar

Most color print shops print the required color combinations in bars at the top of each sheet. Before a job is shipped, the color bars are trimmed off and thrown away. If a color bar sample is unavailable, you can use the sample color bar above, although the color values of this bar may not match your printer's ink colors exactly.

Adjusting the color display

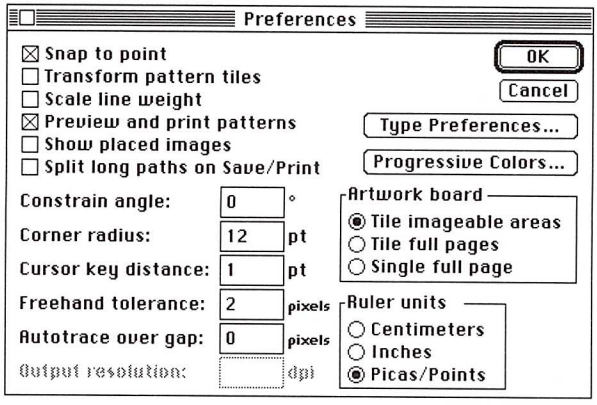
How closely you can match the video display to a color sample depends on the number of colors you have chosen in the Control Panel. The Adobe Illustrator program displays color when the Control Panel is set for 16 or more colors. For the best results, set the monitor characteristics in the Control Panel to 256 colors.

Finally, do not undertake the following procedure until your monitor has been on for at least 20 minutes. Before you do anything else, follow the instructions for adjusting the convergence in the manual provided with the monitor.

To adjust your color display:

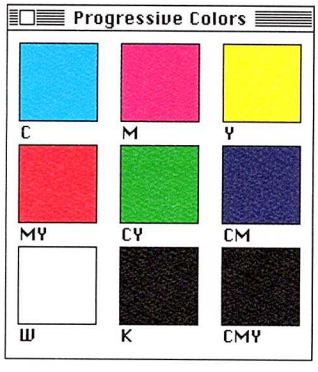
1. Start the Adobe Illustrator program and open a document.
2. Choose Preferences from the Edit menu.

The Preferences dialog box appears.



3. Click Progressive Colors.

   The Progressive Colors dialog box appears, showing the four process colors, plus white and the various combinations of cyan, magenta, and yellow. These are called *progressive colors* because they show the appearance of progressive combinations of ink.

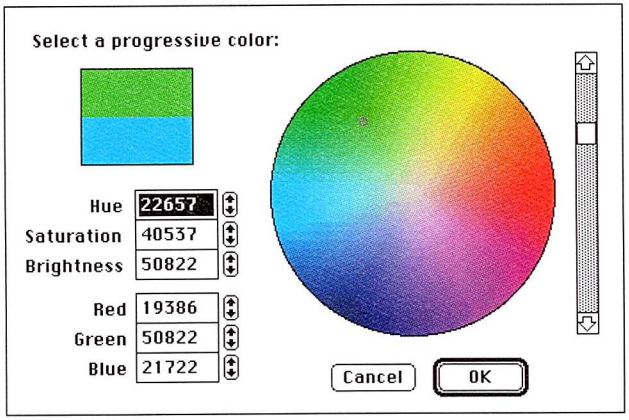


4. Compare the on-screen color chart to the printed color bar or other color samples.

   If the colors displayed on the monitor closely match the colors on the printed sample, then no adjustment is necessary. If the colors do not match, proceed with the following instructions. To match the paper color on which your job is printing, adjust the color of the box labeled "W."

5. Click on the box that contains the color, or color combination, that needs adjusting.

A color wheel appears.



6. Compare the printed sample to the screen sample in the upper left of the dialog box.

   You can adjust the color in any of the following ways:

   - Move the white color-adjustment dot that appears inside the color wheel. This changes the hue and saturation. It does not affect the selected color's brightness.
   - Click on the arrows or move the box in the scroll bar to the right of the color wheel. This changes the selected color's brightness. It does not affect hue or saturation.
   - Click on the arrows next to the Hue, Saturation, and Brightness fields or the Red, Green, and Blue color fields, or enter specific values between 0 and 65535 in these fields.

7. When the color of the screen sample matches the printed sample, click OK.

NOTE: Video monitors use red, green, and blue, instead of cyan, magenta, and yellow, to create colors. Red, green, and blue are called the additive primary colors and are used to create colors with direct light sources such as televisions and monitors. Cyan, magenta, and yellow are called the subtractive primary colors and are used to create colors in printed material. For more information on this, see the suggested reading and glossary at the end of this manual.

Although changing the color display can help you get a better idea of how your finished product will look, the differences between the printing process and the video display are extensive. A perfect match is almost impossible, although you can come close. Never use the video display as a substitute for color comps and proofs. (For information on color comps, see Chapter 7, "Printing.")

To preview a color illustration on your monitor, simply choose Preview Illustration from the View menu.

TIP: As is the case with other programs, the Adobe Illustrator program works much faster when the color is turned off and the monitor is set for two levels of gray. Colors can still be assigned to objects, however. To save drawing time, keep the color turned off in your computer until you are ready to preview your work.

Using color calibration devices with the Adobe Illustrator program

Calibration devices, such as the Barco and the Radius PrecisionColor calibrators are designed to adjust the color display at regular intervals to maintain a consistent color appearance over time. These devices can be useful to ensure that the color settings you have made in the Adobe Illustrator program won't vary from day to day. It is important, however, to remember that these devices are designed only to maintain a consistent color display. They will have no effect on your final separation negatives. DO NOT use the on-screen display of colors to adjust the screen tint percentages in your documents. This should be done by checking the values listed in either tint charts or on a color tint wheel (see Chapter 3, "Assigning Colors with the Adobe Illustrator Program").

Chapter 3: *Assigning Colors with the Adobe Illustrator Program*

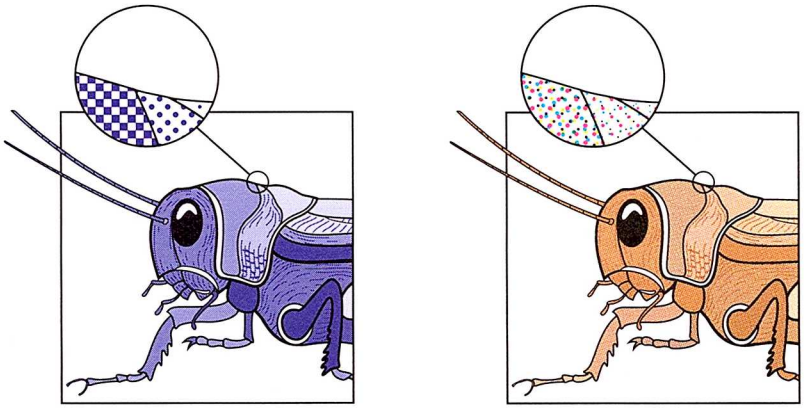
With the Adobe Illustrator program, you can assign color values to objects either as you draw them or after you have finished your artwork. There are two basic ways to assign colors in the Adobe Illustrator program: using process colors or using custom colors. Although process and custom colors are sometimes used together, you will usually choose one or the other.

Using the process color method, you assign percentages of the four process colors—cyan, magenta, yellow, and black—to objects in your illustration. Once you have proofed the color values, you then use the Adobe Separator program to print four color-separation negatives, one for each process color. (For information on color comps, see Chapter 7, "Printing.") The four colors are then printed using semi-transparent inks that combine to produce a full range of colors.

Using the custom color method, you assign a specific ink color to an object or objects in your illustration. With the Adobe Illustrator program, you can choose PANTONE MATCHING SYSTEM colors, or you can create your own colors and add them to the custom color list. After proofing the illustration, you then use the Adobe Separator program to create one negative for each color in the image. Custom colors are printed in opaque inks that usually do not blend well when overprinted.

Custom color is also referred to as *spot color* because it is often printed in small areas on a page to highlight information or provide accent color.

The illustration shown here contains examples of both techniques. The grasshopper on the right was printed using the four process colors, while the grasshopper on the left was printed using only black and a PANTONE MATCHING SYSTEM color. A magnification of a section of the illustration on the right clearly shows dots in each of the four process colors. A magnification of a section of the illustration on the left shows only purple dots and black lines.



To decide whether you should use process or custom colors, consider how many colors, including black, you are using in your document. Your goal should be to produce as few negatives as possible. Thus, if your document uses two colors, black and green, it makes sense to use custom colors so that you need only two negatives. If you were to use process colors, at least three negatives (black, cyan, and yellow) would be necessary to produce similar results. On the other hand, if you have 32 different colors in your illustration, you will want to use the process colors so that you can work with four negatives instead of 32.

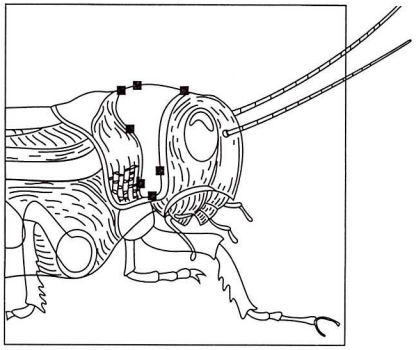
Using the process colors

To assign colors that will be printed using the process colors, you indicate a percentage for cyan, magenta, yellow, and black. With these four colors it is possible to duplicate a wide range of colors.

To help you find the proper percentages for the process colors , you should use either color tint charts or a color tint wheel. Tint charts and color tint wheels are available from graphic arts supply stores. Before you begin this procedure, determine the color you want assigned to the selected object. Note the screen tint percentages of each process color.

To assign colors using the process colors:

1. Select the object to be colored.



2. Choose Style from the Paint menu.

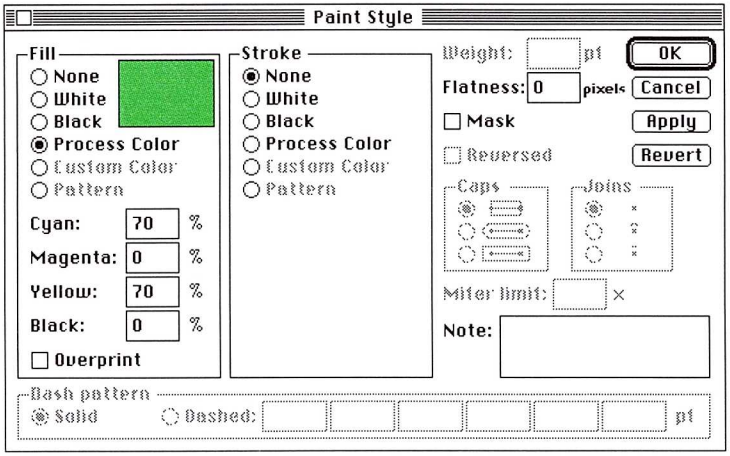
   The Paint Style dialog box appears.

   In the upper right corner of the Fill option group is the color preview box. If you have a color monitor, this box shows the current color value you have chosen. If you have a black-and-white monitor, the color appears as an appropriate shade of gray. Changes made to the color are displayed immediately in this box. The color preview box appears in both the Fill and Stroke option groups whenever the White, Black, Process Color, Custom Color, or Pattern options are chosen.

3. Click on Process Color in the Fill or Stroke option group.

   Four fields appear, one for each of the four process colors. The Cyan field is highlighted.

4. Enter the percentage of cyan to be used in the selected field.
5. Press the Tab key to select each of the remaining three process colors and enter the percentage of each color to be used in the field.



6. If you are using a color monitor, check the color preview box to see that the color displayed approximates your choice.
7. When you have assigned the desired color values, click OK.

> *TIP: If your process color illustration contains large black areas, you can make the blacks appear much darker by adding 15- to 30-percent tints of cyan, magenta, and yellow to the black. (Check with your printer on the exact percentages you should use.)*

Using custom color

The Adobe Illustrator program lets you choose custom colors in one of two ways: using the PANTONE MATCHING SYSTEM colors or using colors that you have created. The most common method of choosing custom colors is the PANTONE MATCHING SYSTEM, developed by Pantone, Inc. of New Jersey. This system contains more than 700 PANTONE colors, plus a few nonstandard colors, such as fluorescent and metallic color inks. When you specify a color using the PANTONE MATCHING SYSTEM, the print shop matches it using the ink formula supplied by Pantone, Inc.

In addition to using the PANTONE color inks and the four process-color inks, you can also create your own ink colors and display them on your monitor. You will have to work with your printer very closely on this, but the Adobe Illustrator program lets you create an approximate screen representation for a wide range of colors.

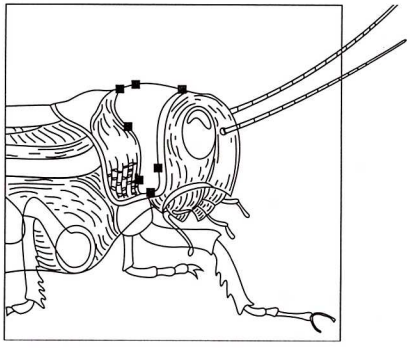
Using the PANTONE MATCHING SYSTEM

The Adobe Illustrator 88 program supports more than 700 PANTONE colors for printing inks. Screen representations of these colors are built into the program. To use these colors, first determine the ink color you want, using either a *PANTONE Color Formula Guide 747XR* or an ink chart obtained from your printer. PANTONE books are available from printers and graphic arts supply houses.

To use the PANTONE MATCHING SYSTEM, you must have the PANTONE color document open. Do not use the PANTONE document for illustrations. If you accidentally use one of the PANTONE documents for your illustration, choose Select All from the Edit menu and then cut and paste your work to a blank document, or choose Save As and save the file under a different name.

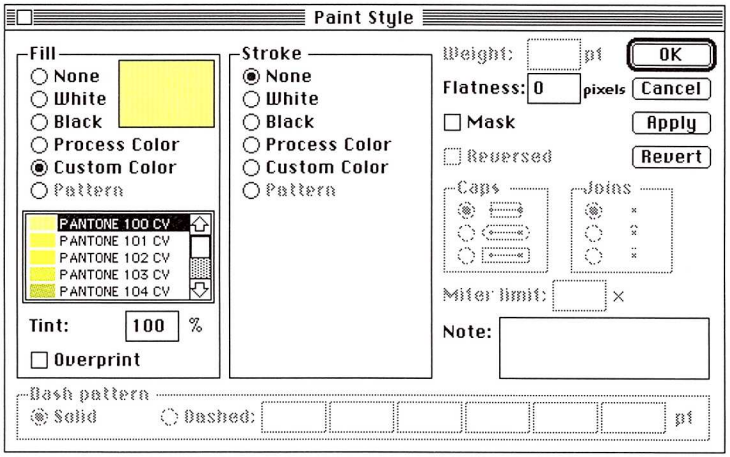
To assign a PANTONE MATCHING SYSTEM color:

1. Open the PANTONE color document that matches your paper type (coated or uncoated).
2. Open the document to which you wish to add PANTONE color or, if the document is already open, choose it from the Window menu.
3. Select the object to be colored.



4. Choose Style from the Paint menu.
5. Click on Custom Color in the Fill or Stroke option group.

A list box appears with a selection of the available PANTONE and custom ink colors.



6. Click inside the list box and type the number of the PANTONE color you want to display, or scroll down to the desired color and select it.

   The color appears highlighted in the list box. A screen representation of the color appears both next to the color name and in the color preview box.

7. If you want a screened percentage of that color, double-click in the Tint field and enter the percentage.

8. Click OK.

   Although the PANTONE MATCHING SYSTEM was created specifically for use with ink mixes, you can also simulate the PANTONE colors with the process colors. To do this, you need the *PANTONE Process Color Simulator 747XR,* which lists the percentages of cyan, magenta, yellow, and black needed to simulate a given PANTONE color. The *PANTONE Process Color Simulator 747XR* is available at most graphic arts supply stores or directly from Pantone, Inc.

Creating your own ink colors

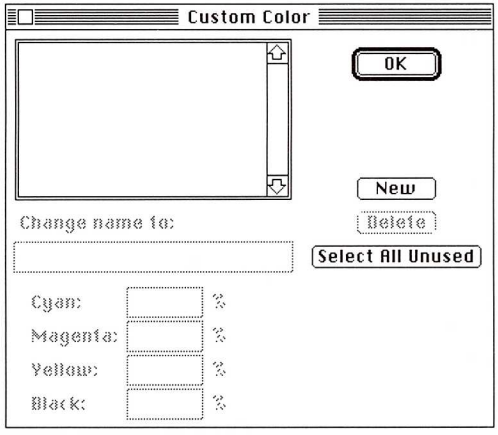
If you desire an ink color representation other than the ones available in the program, you can also create your own ink mixes and display them on your monitor.

Custom ink mixes are expensive, and you will have to work very closely with your print shop to produce a custom ink color. The print shop will take your sample color, or the color specifications that you have given them, and, through a process of examination and comparison, produce a compatible ink color. When you have obtained a sample of your ink color, compare it with tint charts to determine the process color combination that most closely matches your ink color. Note the percentages for the tint; these are the numbers you will use to create the on-screen representation of your ink color.

To create and assign your own ink colors:

1. Choose Custom Color from the Paint menu.

   The Custom Color dialog box appears.



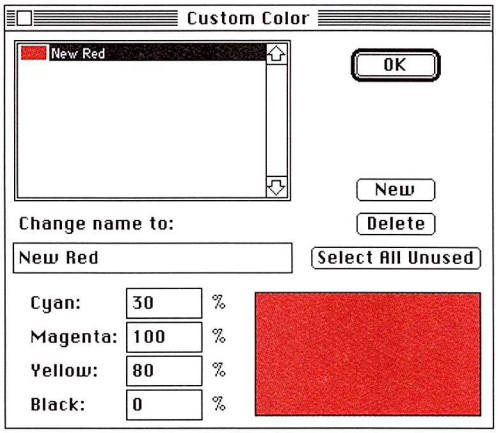
2. Click New.

   The name *New Color*, followed by a number, appears in the list box and in the Change Name To field.

3. Enter the name you want to assign to the color in the Change Name To field.
4. Press the Tab key. The Cyan field is highlighted.
5. Enter the percentage of cyan to be used in the custom color.
6. Press the Tab key to select each of the remaining three process colors and enter the percentage of each color to be used in the field.

   As you enter each process color percentage, the changes are immediately reflected in the color preview box in the lower right corner of the dialog box.

7. If you are using a color monitor, check the color preview box to see that the color displayed approximates your choice. If you want to change the values in any color field, double-click inside that color field and enter the new percentage.



8. When you have assigned the desired color values, click OK.

   The custom color you have created now appears in the Paint Style dialog box, listed alphabetically with the other custom colors. You can use this color just as you would any other custom color. The colors that you create are saved with the documents in which they were created.

   As long as the document in which you created your custom color is open, you can assign the color to objects in other documents. Once a custom color has been used in a document, it permanently joins the list of colors available in that document. Also, custom colors used in a document and later discarded remain part of the document unless they are deleted.

> *TIP: If you use certain special colors regularly, create a document that contains all of these colors. As long as that document is open, you can use the colors in other documents.*

To delete unused custom colors:

1. Choose Custom Color from the Paint menu.

   The Custom Color dialog box appears.

2. Click on the color you want to delete, or click Select All Unused if there are several unused colors you want deleted from your document. This procedure will delete the specified colors from all open documents, so be sure that only documents from which you want the colors deleted are open.

3. Click Delete.

   The selected custom colors are removed from the document. This procedure cannot be undone. Be careful to delete only colors that you do not plan to use again.

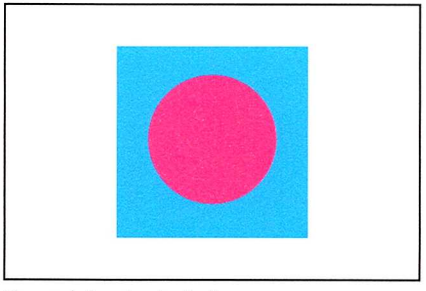
Although you create custom colors by specifying combinations of the process colors, you get only one negative (not four) when you print the separation for that color. The printer will mix the inks to your specifications before printing the document. To convert a custom color back into its process color components, use the convert-to-process feature in Adobe Separator. For more information on this feature, see "Converting Custom Colors to Process Colors" in Chapter 7.

Chapter 4: *Overprinting and Trapping*

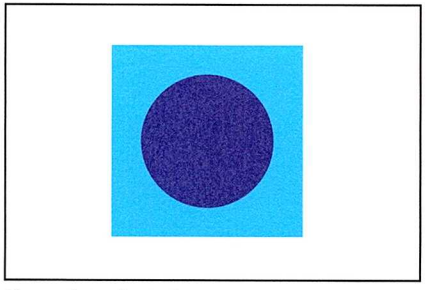
Overprinting

Normally, when an object is placed on top of another object in an Adobe Illustrator document, the area of the bottom layer that falls beneath the top layer is completely covered up, or "knocked out." To do this, the Adobe Illustrator program writes over the bottom object with white in the area where the top object is located. This feature is important to ensure that each color appears as it should. Otherwise, whenever you printed a yellow shape on top of a blue shape, for example, the yellow shape would always appear green. For this reason, the Adobe Illustrator program automatically assumes that the under layers are to be knocked out unless you specify otherwise.

Sometimes, however, you may want to create illustrations in which the colors in some shapes blend with the colors in others. To allow you to do this, the Adobe Illustrator program includes a feature called Overprint. The Overprint feature prevents the automatic knockout from occurring. This is useful for creating transparent effects. You can overprint any shape or type, whether it is filled or stroked, or both filled and stroked. Overprinting is also important for generating a small amount of image overlap that is often necessary in offset printing. This overlap is called *trap* and is described under "Creating Trap" in this chapter.



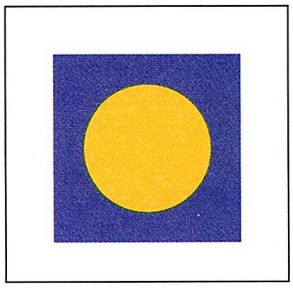
Overprint not selected



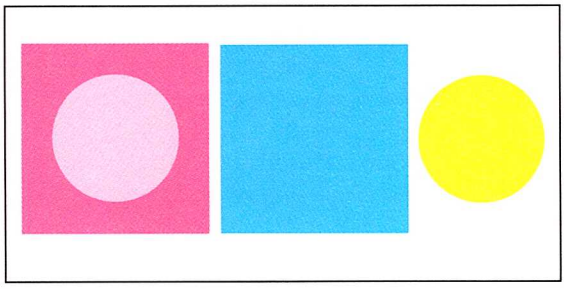
Overprint selected

The Overprint feature works with all colors except 100-percent black. The Adobe Separator program automatically assigns solid black to print over all other colors. Percentage tints of black, however, must be specified to overprint. (For more information on this, see "Eliminating Show-Through" in this chapter.)

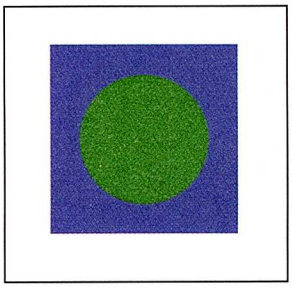
When overlapping objects are assigned more than one color, only the colors that are not common to both objects are affected by the Overprint feature. Colors that are common to both objects print as they normally would, with the topmost object knocking out the object underneath it.



Preview illustration



Color separation of illustration

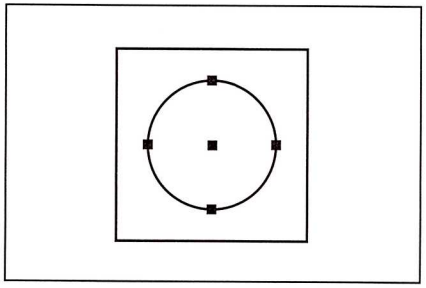


Printed illustration

Overprinting is apparent only on the final separation negatives, and is intended solely for use with the Adobe Separator program. You cannot preview the Overprint feature on the monitor; objects appear the same whether or not Overprint is selected. The Overprint feature also won't work on color or black-and-white laser printers, or when you are printing directly from the Adobe Illustrator program. Artwork using the Overprint feature should be checked carefully with integral or overlay proofs after the separations are made.

To overprint:

1. Select the object you want to use to overprint another (this must be the topmost object).

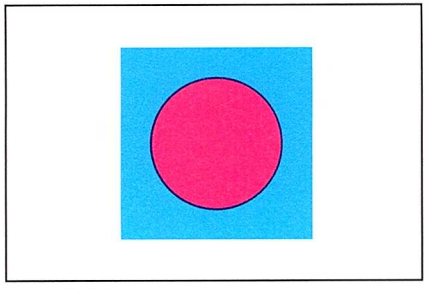


2. Choose Style from the Paint menu.
3. Click the Overprint checkbox in the Fill option group.
4. Click OK.

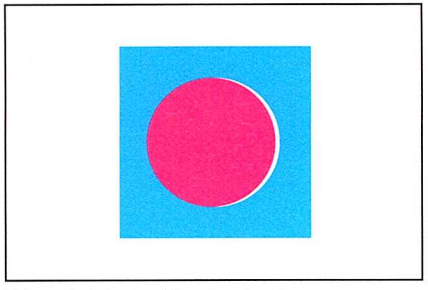
Creating trap

One of the most useful features of overprinting is its ability to create *trap*. Trap is the intentional overlap between colors and shapes that is provided to avoid registration problems when a job is printed.

The two figures shown below are identical except for the trap in each figure. Notice that the illustration without trap shows a tiny bit of white along the edge between the background color and the interior color. The color is the right size to fill the interior circle; however, it is *exactly* the right size. Unfortunately, presses are rarely exact. (Consider that the average four-color press produces 10,000 sheets per hour.) Even the best presses experience slight shifts in the position between colors.



Printed object using trap



Printed object without using trap

To avoid potential registration problems, print shops will often modify artwork to create a slight bit of overlap, or trap, between objects. When two or more colors or objects overlap in this way, they are said to *trap into each other.* To create trap, print shops either overexpose the image onto intermediate film negatives, or they use special vacuum frames designed specifically for creating trap. These techniques are called *choking* (or *shrinking*) and *spreading*. A choke trap is one in which the background overlaps the image or text that falls within it. A spread trap is one in which the image or text overlaps the background.

Because you are printing your artwork directly onto film, traditional choking and spreading techniques cannot be used; however, you can create the same effect using the Overprint feature. To create trap, you first must decide whether you want to choke the image (trap the background into it) or spread the image (trap the image into the background). Keep in mind that the lighter area should trap into, or overlap, the darker area. If you are unsure which type of trap is appropriate, see the "Spread and Choke Samples" at the end of this chapter.

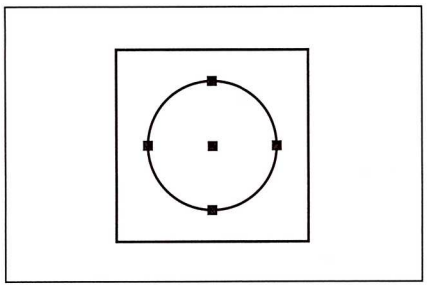
Creating trap using stroke

The easiest type of trap to create is the stroke trap. The stroke trap is similar in function to the traditional print shop spread trap. To create a stroke trap you must give the object a stroke that contains the same color values as the fill, and assign the stroke only to overprint. The Overprint feature affects only those colors that are not common to both objects. If both objects contain all four process colors, you cannot trap them, but trap is less of a problem with this type of art.

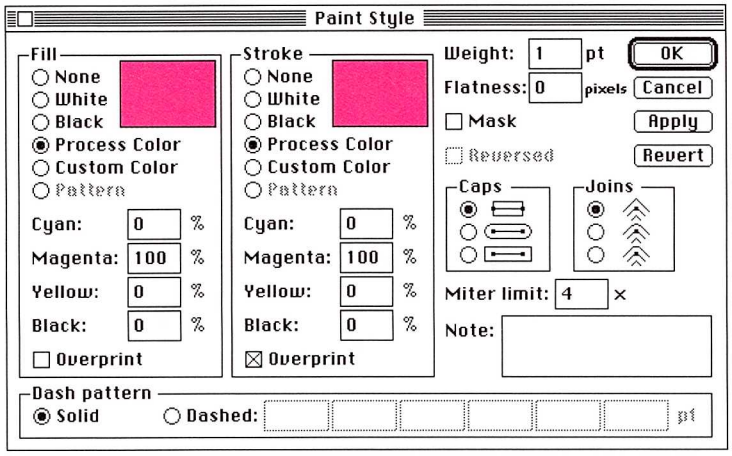
NOTE: If the colors in your artwork all trap into solid black lines, you do not need to use the Overprint feature to add trap. In this case, the colors will automatically trap into black lines.

To create trap using stroke:

1. Select the topmost object of two that must trap into each other.



2. Choose Style from the Paint menu.
3. If the object has a fill value but no stroke value, click the Process Color or Custom Color button, as appropriate, in the Stroke options group.
4. Enter the same process color percentages as those that appear in the Fill options group, or choose the custom color and percentage that match the selection in the Fill options.



5. Double-click inside the Weight field to highlight it, and enter a value between 0.3 and 1.

   A stroke weight of 0.3 is a thin trap; a stroke weight of 1 is a thick trap.
6. Click the Overprint checkbox in the Stroke options group. Do not click the Overprint checkbox in the Fill options group.
7. Click OK.

NOTE: If the object you want to trap already has a stroke, simply click the Overprint checkbox in the Stroke options group.

Using a choke mask for trap

The stroke trap will work for illustrations in which the background is darker than the object you are placing within it. If, however, you are placing an object into a background that is lighter than the object, you must trap the background into the object. This is especially true of letterforms, where the wrong type of trap may make the letters appear pinched or swollen. (See the "Spread and Choke Samples" at the end of this chapter.)

To trap a dark object into a lighter background requires a *choke mask*. A choke mask is a duplicate of the topmost object. The choke mask is placed between the topmost object and the object over which it prints. The choke mask has a stroke color value that matches the fill of the underlayer, and it has a fill value of white. The topmost object overprints the choke mask, creating the effect of the bottom object trapping into the top object.

To create a choke mask trap:

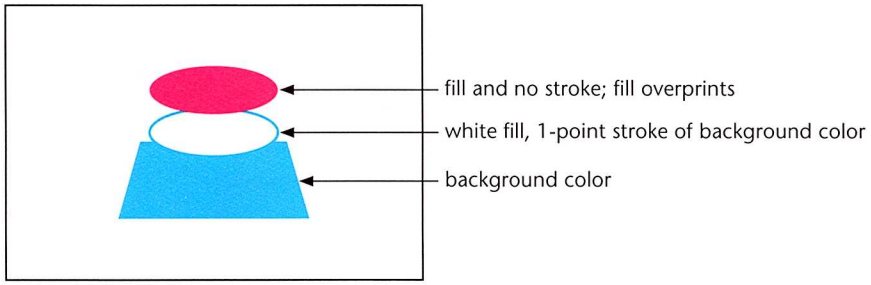
1. Select the topmost object.
2. Choose Style from the Paint menu.

   The Paint Style dialog box appears. The object should have a fill value but no stroke.
3. Select Overprint in the Fill options group and click OK.
4. With the object still selected, choose Copy from the Edit menu (⌘-C).
5. With the object still selected, choose Paste in Back from the Edit menu (⌘-B).
6. Choose Style from the Paint menu.

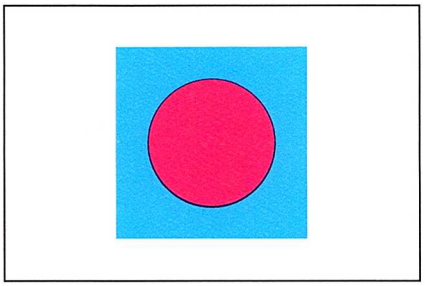
   The Paint Style dialog box appears.
7. In the Paint Style dialog box, select White from the Fill options. If Overprint is selected in the Fill options, deselect it.
8. From the Stroke options group, select the colors that are in the background object.
9. In the Weight field, enter a weight between 0.3 and 1.
10. Click OK.

    The topmost object and the bottom object may have similar color densities, so that one color is not obviously darker than the other. In this case, you still should create a choke mask, but split the stroke value between the choke mask object and the topmost object. For instance, if you would normally use a trap of 0.6, give the choke mask object and the topmost object each a stroke of 0.3.

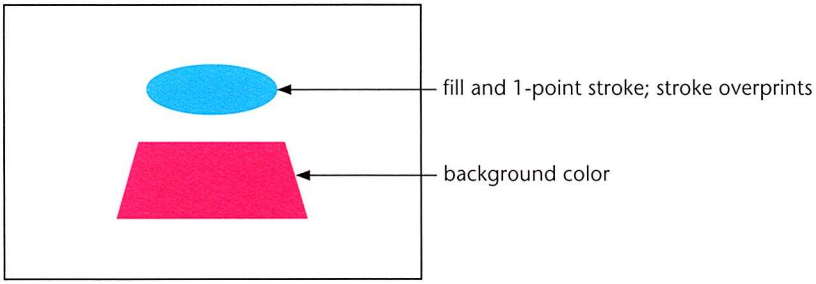
As with other types of overprinting, trap does not appear on-screen or on laser printer proofs, but will appear in the final separations.



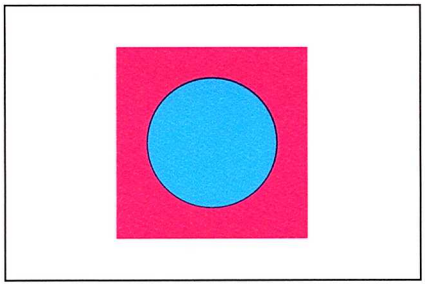
Choke mask trap



Printed result using a choke mask trap



Spread mask trap



Printed result using a spread mask trap

Eliminating show-through

Because 100-percent black is automatically assigned to overprint, you may occasionally encounter problems with show-through in areas where a large black object is printing on top of a lighter area. This problem is easily corrected by adding a tint of one or more of the background colors to the black object. Do not use a tint value of more than 15 percent, or the other color may adversely affect the appearance of the black. If all four process colors are used in your document, a good combination of tint values is 100-percent black, 20-percent cyan, 15-percent magenta, and 15-percent yellow.

To eliminate show-through:

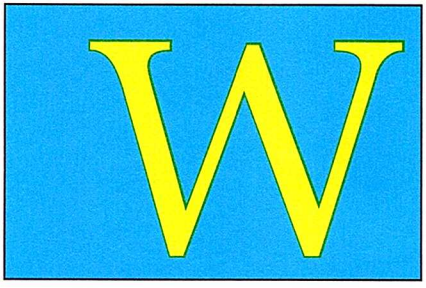
1. Select the black object that is causing the problem.
2. Choose Style from the Paint menu.

   The Paint Style dialog box appears.
3. From the Fill options, select the Process Color option. Add 15 percent to one or more of the colors that appears in the background.
4. Click OK.

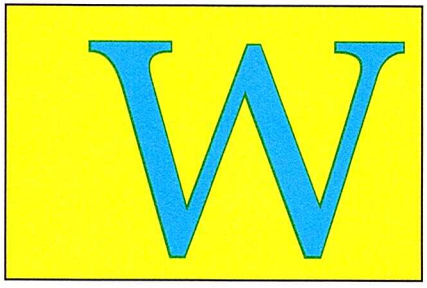
Spread and Choke samples

The following examples show how the choice of a stroke trap or a choke mask trap can affect your results. Each type of trap is applied, first to light text on a dark background, and then to dark text on a light background. Ideally, the lighter color should always overlap (trap into) the darker color. When the wrong type of trap is used, the results are often unsatisfactory. A 1.5-point stroke was used in all four examples.

The illustrations below show spread trap using stroke only.

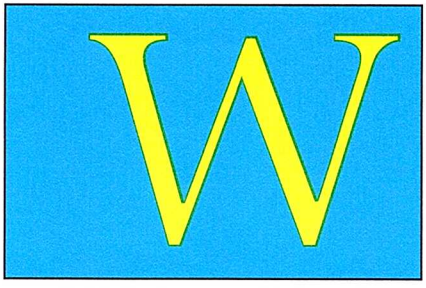


Correct usage

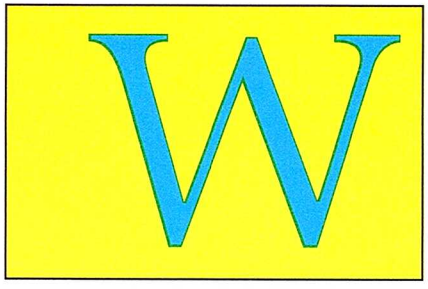


Incorrect usage

The following illustrations show choke or shrink trap, using a choke mask.



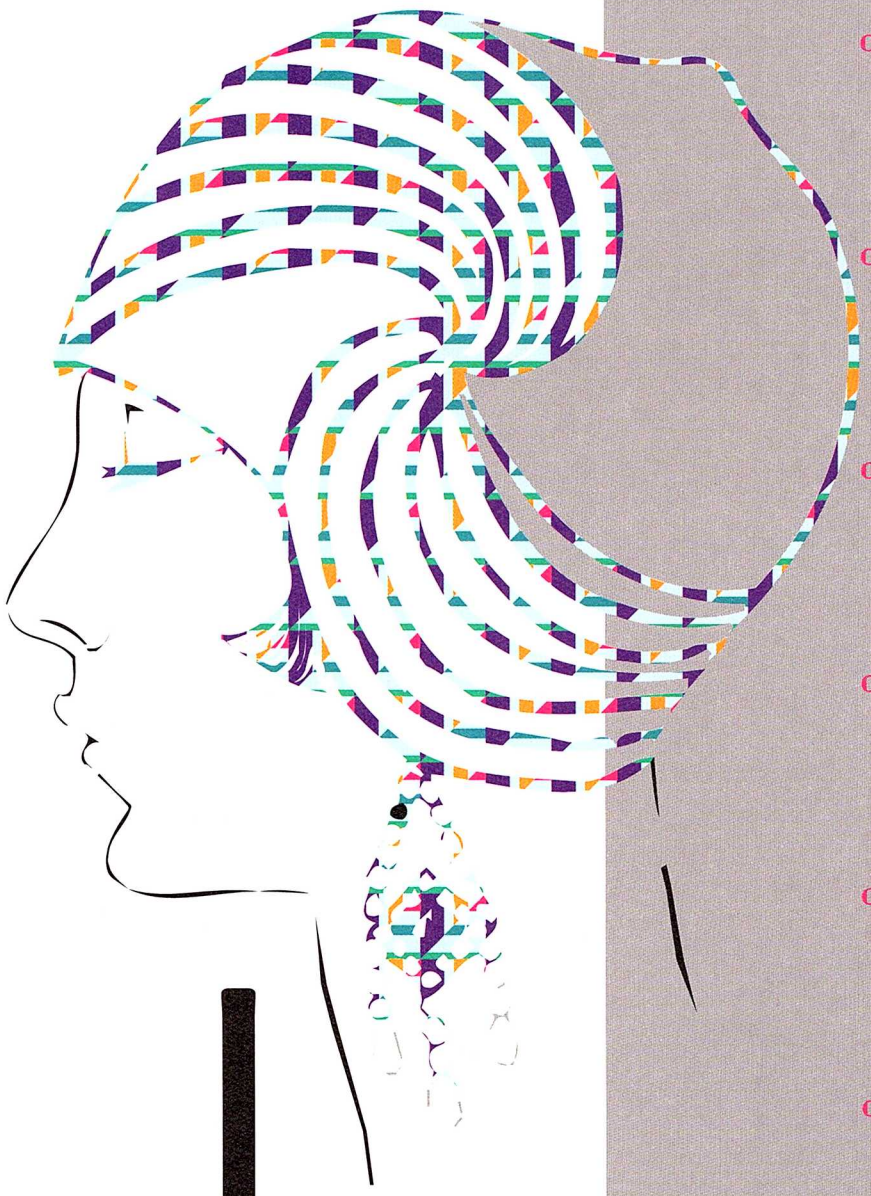
Correct usage



Incorrect usage

Section 2

cmyk cmjn cmgk cmgs cmyk cmjn cmgk



cmyk

Chapter 5: *Separating Files*

Adobe Illustrator documents that contain color information can be printed as four-color and custom-color separations using the Adobe Separator utility program. The program is included on the Tutorials/Utilities disk. The Adobe Separator program also works with the Adobe Photoshop program, and with other programs capable of saving Encapsulated PostScript (EPS) files.

Running the Adobe Separator program

When you first run the Adobe Separator program, a dialog box appears, asking you to personalize your copy of the program. A second dialog box then appears asking you to open an Encapsulated PostScript file. Finally, a third dialog box appears asking you to choose a PostScript Printer Description (PPD) file. PPD files for various printers are supplied with the Adobe Illustrator program. After the first use of the Adobe Separator program, the program will automatically choose the same PPD file until you specify a different one.

After you select the EPS file you want separated and the PPD file that matches your printer, the Adobe Separator display window appears. From here, you can adjust the bounding box size; add or remove register marks, color bars, labels, and trim marks; and adjust the image position within the bounding box. You can also change any of the default settings and select any combination of color separation negatives to be printed, or convert custom colors into their process color equivalents. For information on how to use these features, see Chapter 6, "Modifying Your Color Separation Negatives," and Chapter 7, "Printing."

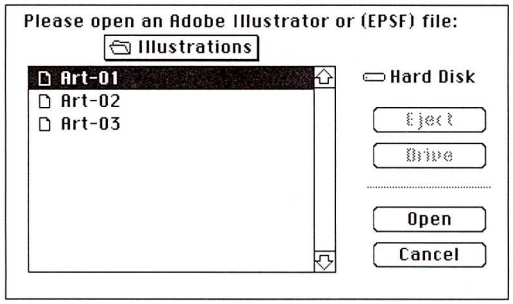
IMPORTANT: You should always print your separated files directly to film whenever possible. This ensures the closest possible match to your screen percentages, eliminates a step in the printing process, and avoids the potential problems that can occur when negatives are shot from paper prints.

To run the Adobe Separator program:

1. Double-click the Adobe Separator icon.

   The Open EPS file dialog box appears, asking you to choose an Adobe Illustrator or Encapsulated PostScript file.

2. Choose the Adobe Illustrator file or the other EPS file you want separated.



If you are using the Adobe Separator program for the first time, the Open PPD file dialog box appears, asking you to choose a PostScript Printer Description (PPD) file.

Choose the PPD file that matches the printer you will be using to print your files.

The Adobe Separator display window appears.

NOTE: After the first use of Adobe Separator, the program will automatically default to whichever PPD you have previously chosen. To change the default PPD file, see "Specifying Another PPD File" in this chapter.

IMPORTANT: EPS and PPD files are saved as text files. Any other text and PostScript files that are on the disk with these files will also appear in the Open EPS file and Open PPD file dialog boxes. If you choose an incompatible text file, Adobe Separator will alert you to the problem and it won't open the file. If you choose an incompatible PostScript language file, Adobe Separator will open it, but you won't be able to print separations from the file.

3. Check the default settings and change them as necessary. (The options are described in this chapter.)
4. Choose the appropriate File menu command to produce the desired separations. (See Chapter 6, "Modifying Your Color Separation Negatives.")

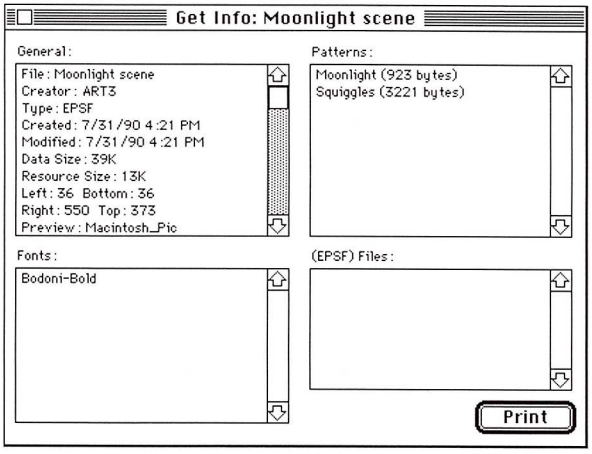
Sending your files to an imagesetting service

If you send your files to an imagesetting service to be printed, you may be asked for the fonts used and other information regarding your files. To assist you in providing this information, Adobe Separator includes a feature called Get Info that lets you print a sheet of facts about your document, including the fonts used, the placed EPS files, patterns, bounding box size, creator name, preview style, and other information.

To use Get Info:

1. Choose Get Info from the File Menu.

   The Get Info dialog box appears.



2. Select Print.

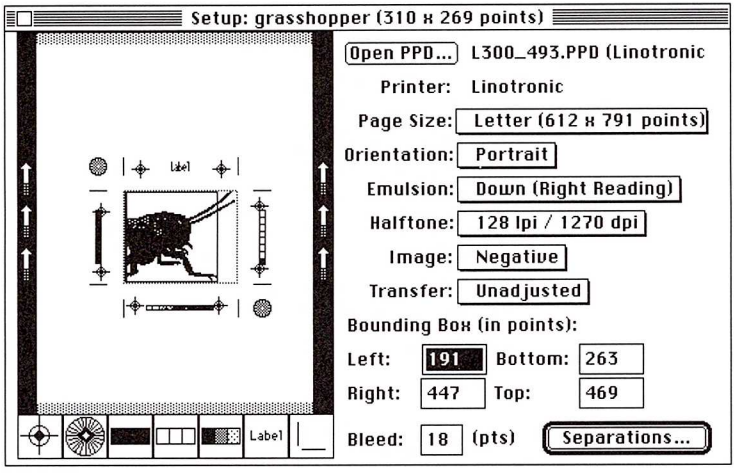
   The Print dialog box appears.

3. Click OK.

   The document information sheet will print on the printer you have selected in the Chooser.

Preparing files for separation

This section describes the options that appear in the Adobe Separator window. When a file is first opened, the default settings of the PPD file appear in the window. These settings determine the page size, image orientation, emulsion type, halftone screen ruling, and transfer adjustments. Once you have opened a file with the Adobe Separator program, you should check the settings in the display window—and change them if necessary—before you print the file. For information on other changes that you can make to a file before printing, see Chapter 6, "Modifying Your Color Separation Negatives."



Specifying another printer

The printer type and the PPD file are selected independently of each other. The Adobe Separator program uses the printer currently selected in the Chooser. If you want to select a different printer, you must change the printer selection in the Chooser. Whenever you change the printer type, make sure that you also change the PPD file accordingly.

To specify another printer:

1. Select Chooser from the Apple menu.

   The Chooser dialog box appears.

2. Click the icon for the printer you want to use. If you are on a network connected to several printers, make sure that the appropriate printer name is selected.

Specifying another PPD file

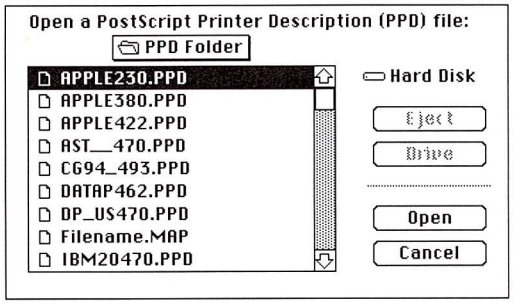
The PostScript Printer Description (PPD) file is a special document that the Adobe Separator program uses to ensure the best results from your printer. Before the Adobe Separator program separates a document, it reads the PPD file you have specified. This file tells the program a number of things about the printer being used, including its dot resolution, available page sizes, whether it supports color, and the acceptable screen rulings.

Each PPD file is named after the type of printer for which it is intended. To get the correct results, you should always use the PPD file with the same name as the type of printer you are using. Some factors, such as available screen rulings and screen angles, are directly determined by the PPD file you have chosen.

To specify a different PPD file:

1. Click on the Open PPD button in the Adobe Separator window.

   The Open PPD file dialog box appears, asking you to choose a PPD file.



2. Double-click the name of the PPD file you want to use.

Specifying page size

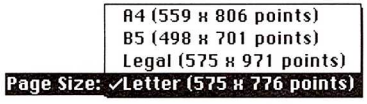
The Adobe Separator program defaults to the information contained in the PPD file regarding the preset page size of the selected printer. You can change the page size to any of the sizes listed in the PPD file. The page size is listed either by its familiar name (such as "Letter") or by its dimensions. The dimensions shown in parentheses after the page size are the limits of the printable area on the sheet. These dimensions are given in points and include the area needed to print the corner marks, color labels, and register marks on each separation.

If you are using a printer that can selectively change page size, you can also specify a custom page size. Page width and height specifications can be adjusted in one-point increments. You can select the Offset option, which moves the page away from the right edge of the printed sheet. You can also specify whether the page is to be printed transverse (rotated 90 degrees) or not. For more information on transverse printing, see the next section, "Specifying Image Orientation." The offset and transverse options are useful when you are printing with devices such as the Linotronic 300 for which the cost of the photosensitive material is high. By using these features correctly, you can avoid wasting film.

To specify a page size:

1. Click inside the Page Size field and hold down the mouse button.

   A pop-up menu appears showing the available page sizes.



2. Drag until the page size you want is selected and release the mouse button.

   The new page size replaces the former one in the field.

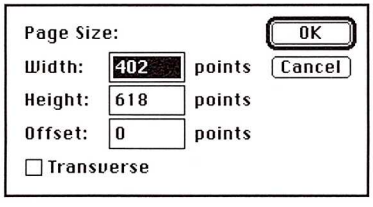
To specify a custom page size:

1. Click inside the Page Size field and hold down the mouse button.

   A pop-up menu appears showing the available page sizes.

2. Drag until Other is selected and release the mouse button.

   The Page Size dialog box appears.



3. In the Width field, enter the desired width in points and press the Tab key to select the Height field.
4. Enter the desired height in points and press the Tab key to select the Offset field.
5. Enter the desired offset value in points.
6. To change the page orientation to transverse, click the Transverse checkbox.

7. Click OK.

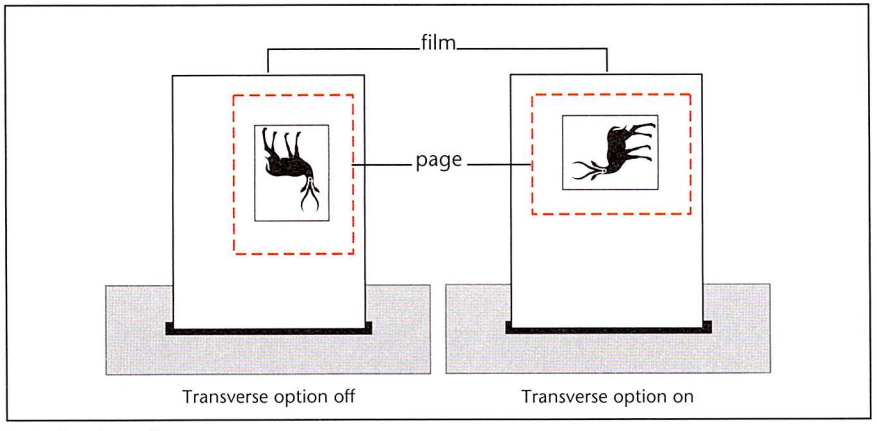
IMPORTANT: If you are using a Linotronic 300, the resolution at which the machine is set will affect the maximum size of the page. At a resolution of 2540 pixels, the maximum page size is 11.5 inches by 12 inches. At a resolution of 1240 pixels, the maximum page size is 11.5 inches by 22 inches.

TIP: For images that are smaller than 8.5 inches by 11 inches, select Other from the Page Size field to save film. If your illustration is very small, you may want to move the register marks to prevent them from overlapping.

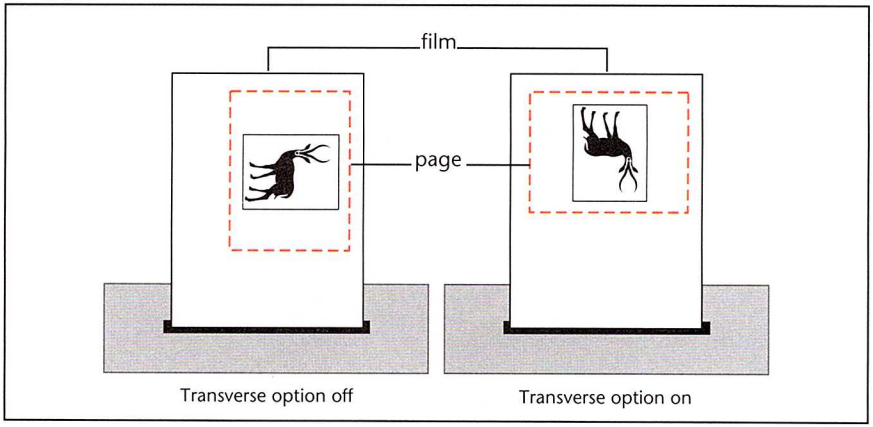
Specifying image orientation

Orientation determines the direction in which the image will print. You have two orientation choices: portrait and landscape. In portrait mode, the top of the image is printed parallel to the short edge of the page. In landscape mode, the top of the image is printed parallel to the long edge of the page.

Do not confuse *transverse* with orientation. The Transverse option changes the page orientation on the printed sheet; the Orientation option changes the image orientation on the page.



Portrait orientation



Landscape orientation

To specify the orientation of the image:

1. Click the Orientation field and hold down the mouse button.

   A pop-up menu appears showing the two orientation choices.

2. Drag until the orientation you want is selected and release the mouse button.

   The new orientation replaces the former one in the field.

Specifying emulsion type

Emulsion type refers to the photosensitive layer on a piece of film or paper. Emulsion Up (right-reading) means that any type in the image is readable when the photosensitive layer is facing you. Emulsion Down (right-reading) means that type is readable when the photosensitive layer is facing away from you. Normally, images printed on paper are printed Emulsion Up (right-reading), whereas images printed on film are often printed Emulsion Down (right-reading). Check with your print shop to determine which emulsion direction it prefers.

To tell whether you are looking at the emulsion side or the non-emulsion side (referred to as the *base*), examine the final film under bright light. One side will appear shinier than the other. The dull side is the emulsion side; the shiny side is the base.

To specify emulsion type:

1. Click inside the Emulsion field and hold down the mouse button.

   A pop-up menu appears showing the two choices.

2. Drag until the emulsion type you want is selected and release the mouse button.

   The new emulsion type replaces the former one in the field.

Specifying the halftone screen ruling

The Halftone field shows the screen ruling of the halftone pattern that will be used to print the separations. The screen ruling indicates how many halftone dots are in one inch. It is measured in lines per inch (lpi). The default setting and available choices will vary depending on the printer and PPD file you are using.

If you are using a PostScript high-resolution imagesetting device, screen rulings are shown with the screen angles for the four process colors and the custom color angle listed after it in parentheses. The angles are listed in this order: cyan, magenta, yellow, black, and custom color.

As the screen ruling increases, the halftone dots become less noticeable; however, there is a trade-off between the screen ruling and the number of available gray shades. On a 300-dpi laser printer, for example, a 60-lpi screen ruling gives you a halftone dot with a 5-pixel by 5-pixel matrix for a total of 26 possible shades of gray (including white, or no pixels). If you increase the screen ruling to 100 lpi, you reduce the dot matrix to 3 pixels by 3 pixels, for a total of 10 possible gray shades.

> *NOTE: Most offset print shops cannot print halftones that have a screen ruling greater than 150 lines per inch. Before setting a screen frequency higher than 100 lines per inch, check with your print shop to find out the maximum screen ruling the shop can print.*

To specify the halftone screen ruling:

1. Click inside the Halftone field and hold down the mouse button.

   A pop-up menu appears showing the available rulings and screen angles.

2. Drag until the ruling you want is selected and release the mouse button.

   The new halftone setting replaces the former one in the field.

Setting the transfer adjustments

The Transfer function acts as a mediator between the Adobe Separator program and your imagesetting device. No two imagesetting devices are exactly alike. Each one may produce slight variations in screen tint values at different percentages. The Transfer function adjusts the Adobe Separator output based upon the unadjusted densitometer readings taken from the imagesetting device you are using. This ensures that the tint values in your separation negatives will closely match the tint values that you have assigned to the various colors.

To use the Transfer function, you first must print four separation negatives of the Densitometer Control Chart document included with the Adobe Separator program. You must also have access to a transmission-type densitometer.

After you have printed the Densitometer Control Chart, take a densitometer reading of each percentage square on the chart negative and write them down on a sheet of paper or on a copy of the Tint Adjustment Worksheet included at the end of this chapter. Enter the densitometer readings in the appropriate places on the Tint Adjustment Chart in the Adobe Separator program. After the chart is completed, save it and proceed with your file separation.

To print the Densitometer Control Chart:

1. Open the file as you normally would in Adobe Separator.
2. Make sure the Transfer field is set to Unadjusted; then choose Print All Separations from the File menu.

NOTE: If you print this file as a positive, the order of the densitometer readings will appear backwards, with the smaller numbers at the bottom of the list and the larger numbers at the top.

To enter adjusted tint values:

1. Click inside the Transfer field and hold down the mouse button.

   A pop-up menu appears.

2. Drag to Adjust Tints and release the mouse button.

   The Tint Adjustment Chart appears.

Unadjusted tint densities:

Tint	C	M	Y	K	Custom
0%	0.000	0.000	0.000	0.000	0.000
10	0.046	0.046	0.046	0.046	0.046
20	0.097	0.097	0.097	0.097	0.097
30	0.155	0.155	0.155	0.155	0.155
40	0.222	0.222	0.222	0.222	0.222
50	0.301	0.301	0.301	0.301	0.301
60	0.397	0.397	0.397	0.397	0.397
70	0.522	0.522	0.522	0.522	0.522
80	0.697	0.697	0.697	0.697	0.697
90	0.996	0.996	0.996	0.996	0.996
100	3.000	3.000	3.000	3.000	3.000

OK
Cancel
Open...
Save...

3. Double-click the 0-percent cyan square on the screen and enter the densitometer reading from the 0-percent cyan box on the Densitometer Control Chart.

   IMPORTANT: Enter all numbers carefully. An incorrectly entered number will cause the program to over- or undercorrect for tint values in a certain range and may produce unacceptable results.

4. Press the Tab key to select the second field in the cyan column.
5. Enter the densitometer reading from the 10-percent cyan box on the densitometer control chart.
6. Continue pressing the Tab key and entering field values until the chart is completed.

   NOTE: The screen angles for custom colors are the same as the screen angles for black. To enter the custom color densitometer readings, use the column labeled "Custom," which appears on the black separation negative.

7. Click Save.
8. Enter the name of the tint adjustment values in the Save Tint Adjustments As field.
9. Click OK.

   NOTE: If you do not save the tint adjustment values, your tint adjustments will still be in effect as long as the Adobe Separator program is running. As soon as you quit the program, however, you will lose your tint adjustments.

To use existing tint adjustment values:

1. Click inside the Transfer field and hold down the mouse button.

   A pop-up menu appears.

2. Drag to Adjust Tints and release the mouse button.

   The Tint Adjustment Chart appears.

3. Click Open. Choose the tint adjustment values you wish to use.
4. Click OK.

Unadjusted Tint Densities					
Tint (%)	C	M	Y	K	Custom
0					
10					
20					
30					
40					
50					
60					
70					
80					
90					
100					

Tint Adjustment Worksheet

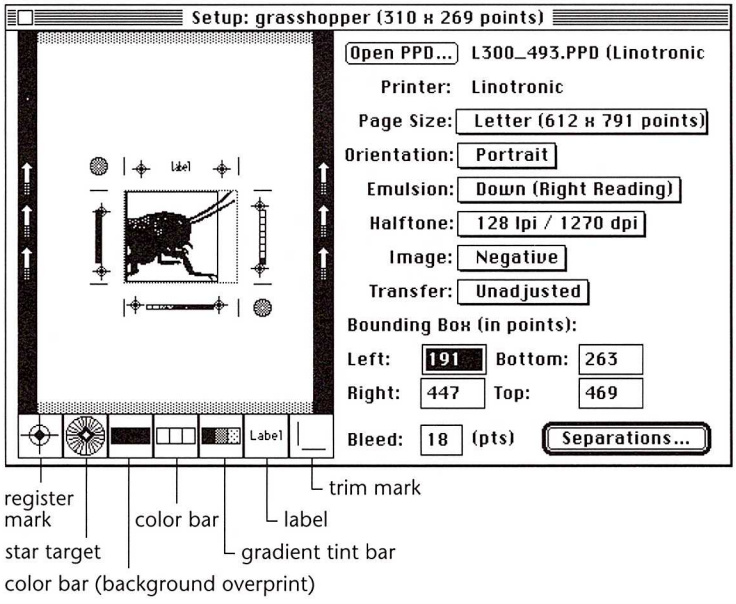
Chapter 6: *Modifying Your Color Separation Negatives*

This chapter covers the changes you can make to the file within the preview picture window of the Adobe Separator window. After you have set up the file parameters, as described in Chapter 5, "Separating Files," you may want to further modify your separations by adding labels, register marks, gradient tints, color bars, and crop marks. If you are printing only a portion of your document, you may also want to change the size of the bounding box and specify the amount of image (bleed) that will print beyond the limits of the bounding box.

If you have saved your EPS file with a preview image, the image appears in the preview window. If there is no preview image, the words No Preview Picture Available appear in the window. The preview window shows you where the image prints on the page. How the image appears in the preview window depends on the imagesetting device you have chosen and on the orientation of the image on the page. When it is first opened, the image appears at the center of the page. The register marks, color bars, labels, and trim marks appear in their default placements.

In the black borders to the right and left of the preview page appear three small white arrows. These indicate the paper or film direction of the imagesetting device.

The preview window is also used to add or remove elements from the separations before you print them. Within the preview window, you can add or remove any of the labels, color bars, gradient tints, trim marks, or register marks. You can also resize the bounding box and change the position of the image within the bounding box. All of these features are active, even if no preview picture is available for your document.



Changing the bounding box

The bounding box defines the outer edges of the image. It appears as a dotted line around the image. Normally the bounding box is the exact height and width of your document's image area. If you need to change the size of the bounding box, you can do so by clicking and dragging the corner or side that you want changed. You can make the bounding box larger or smaller than the size of the original document.

If you make the bounding box smaller than the image area, any part of the image that extends beyond the specified bleed distance will not appear on the separations. For more information on bleed, see "Specifying Bleed Area" in this chapter.

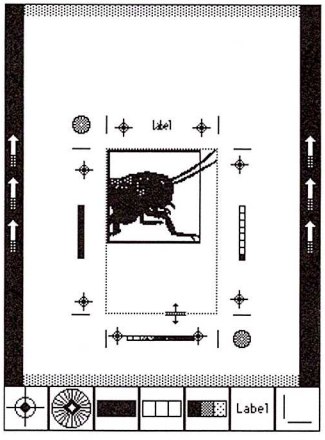
To manually change the size of the bounding box:

1. In the preview window, move the cursor to the side or corner of the bounding box that you want to move. (The bounding box appears as a dotted line around the image.)

   The cursor turns into a two- or four-directional arrow, depending on whether you've chosen a corner or a side of the bounding box.

   NOTE: If the cursor turns into a hand, you've gone too far and are inside the image area. Move the cursor back to the edge of the bounding box.

2. Click and drag the bounding box. As you drag it, the bounding box will change size.



To change the size of the bounding box automatically:

1. Double-click inside the first bounding box field (labeled "Left") to highlight it.
2. Enter the numeric position of the left side of the bounding box.

   NOTE: All bounding box numbers should be entered in points.

3. Press the Tab key.

   The bounding box field labeled "Right" is highlighted, and the left side of the bounding box in the preview window is changed to reflect the new position as entered in the bounding box left field.

4. Enter the numeric position of the right side of the bounding box and press the tab key.

   Continue entering values and pressing the Tab key until all sides of the bounding box have been changed.

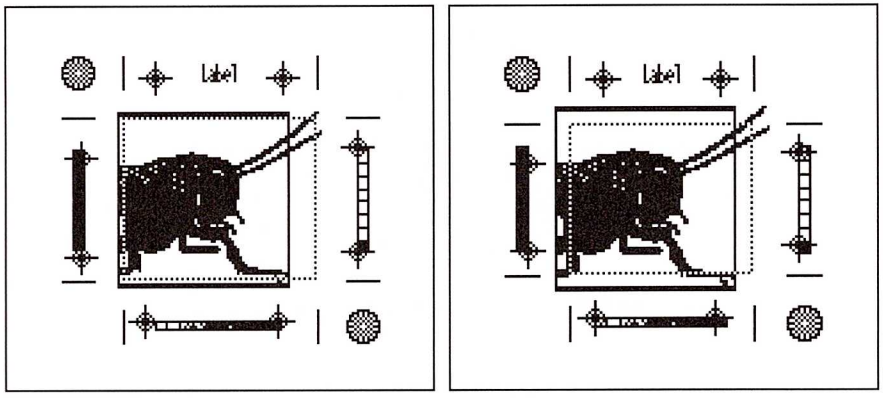
5. Press Enter.

Specifying bleed area

Bleed is the part of the image that normally does not print. This area is outside of the printed area, but it is included on the separations as a buffer margin to avoid problems that may occur with slight image shifts on the press (see Chapter 4, "Overprinting and Trapping"). Adding bleed will also ensure that images that must trap into a keyline, for instance, will fill the desired area without problems. This is especially critical when you are combining imagesetter-produced negatives with traditional camera negatives.

The size of the bleed depends on its purpose. If it is a press bleed (that is, an image that bleeds of the edge of the printed sheet), you should provide a bleed of at least ten points. If the bleed is to ensure that an image fits a keyline or specific boundary area on a page, a bleed of no more than two or three points is usually required. Adding bleed does not change the bounding box or crop marks.

NOTE: If the bounding box is the same size or larger than the image area of your document, you cannot add bleed to the document; bleed can only be used when the bounding box is smaller than the total image size.



To specify bleed size:

1. Double-click inside the Bleed field to highlight it.
2. Enter the desired bleed dimension in points.

   The preview window will automatically indicate the changes to the bleed as they are entered in the Bleed field.

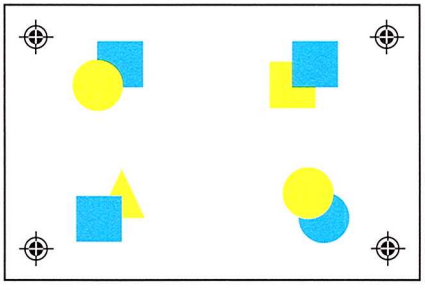
Using register marks

After a document is separated, the print shop uses the register marks that appear on the Adobe-Separator-generated negatives to align the separations. Two types of register marks appear on negatives created by the Adobe Separator program: *crosshair register marks* and *star targets*.

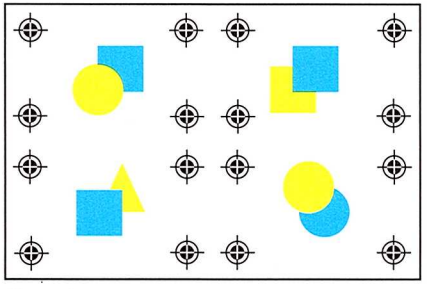
The crosshair register mark appears as the first icon in the panel below the Adobe Separator preview window. Crosshair register marks are the most commonly used marks in printing because they are easy to line up accurately. The default for crosshair register marks is eight, that is, two at each corner of the bounding box.

The second type of register mark is the star target. Star targets are harder to align than crosshair register marks, but they are extremely accurate. The default for star targets is two: one at the top left of the bounding box, and the other at the bottom right of the bounding box.

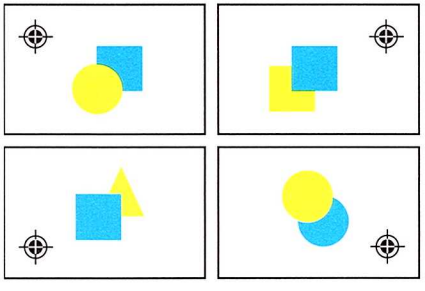
To save money and film, you may sometimes wish to place more than one separation image in a file. If you do this, remember that the print shop is going to cut the images apart and that they will need register marks for each image. If you have more than two images in your file, you should add register marks to the separations. Ideally, each image should have at least four crosshair register marks, or two crosshair register marks and two star targets.



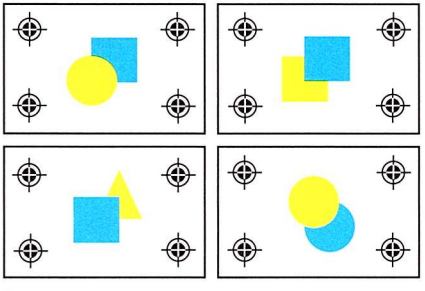
Incorrect



Correct



Incorrect



Correct

IMPORTANT: Remember to allow enough room between images in your file so that you can add register marks without interfering with the images.

To add register marks:

1. Click the crosshair icon or the star target icon below the preview window and drag the cursor into the preview window.

   When it enters the preview window, the cursor turns into the chosen icon.
2. While still holding down the mouse button, drag the cursor to where you want to add a register mark.
3. Release the mouse button.

   The cursor reverts to the arrow, and the register mark appears in the selected position.

To move register marks:

1. In the preview window, click the crosshair or star target register mark you want to move, and drag it to the desired position on the page.
2. Release the mouse button.

   The register mark appears in the new position.

To remove register marks:

1. In the preview window, click the crosshair or star target register mark you want to remove, and drag it off the preview page.
2. Release the mouse button.

   The register mark is removed from the page.

Using color bars

Color bars are used by the print shop to check the color consistency during the press run. There are two types of color bars: the progressive color bar and the black overprint color bar. The progressive color bar prints a small, solid color square of cyan, magenta, and yellow, and the various combinations of these three colors. The black overprint color bar also prints the various combinations of magenta, cyan, and yellow, but then it prints a solid swatch of black over the color combinations. Because print shops often use their own set of color bars, check with your print shop first before adding or repositioning the color bars on your separation negatives.

To add color bars:

1. Click the progressive color bar or the black overprint color bar icon below the preview window, and drag the cursor into the preview window.

   When it enters the preview window, the cursor turns into the chosen icon.
2. While still holding down the mouse button, drag the cursor to where you want to add a color bar.
3. Release the mouse button.

The cursor reverts to the arrow and the color bar appears in the selected position.

NOTE: When dragging a color bar onto the page, the image will automatically reorient itself to the proper vertical or horizontal position, depending on whether you place it on one of the sides or on the top or bottom of the page.

To move color bars:

1. In the preview window, click the color bar that you want to move, and drag it to the desired position on the page.
2. Release the mouse button.

   The color bar appears in the new position.

To remove color bars:

1. In the preview window, click the color bar you want to remove, and drag it off the preview page.
2. Release the mouse button.

   The color bar is removed from the page.

Using gradient tint bars

The gradient tint bar appears as a strip of tint percentage squares (from 10 percent to 100 percent, in 10-percent increments) outside of the bounding box. This bar is useful for spot checking your separations to ensure that your tint values remain consistent. To do this, you will need a transmission-type densitometer. With the densitometer you can read the gradient tint percentages and check them against any previous readings. Sudden changes in the densitometer readings may indicate a problem with the imagesetter or with your photochemistry. The gradient tint bar is most useful when used in conjunction with the Transfer function in the Adobe Separator program. For more information on the Transfer function and densitometer readings, see "Setting the Transfer Adjustments" in Chapter 5, "Separating Files."

NOTE: Once you have adjusted the transfer settings in the Adobe Separator program, you may encounter slight variations in the values throughout the day. This is normal. The gradient tint bar is intended primarily as a safety check, to alert you to sudden shifts in tint quality. It should not be used to set the transfer adjustments. To do this, use the procedures described in Chapter 5.

To add gradient tint bars:

1. Click the gradient tint bar icon below the preview window, and drag the cursor onto the preview page.

   When it enters the preview page area, the cursor turns into the chosen icon.
2. While still holding down the mouse button, drag the cursor to where you want to add a gradient tint bar.
3. Release the mouse button.

The cursor reverts to the arrow, and the gradient tint bar appears in the selected position.

NOTE: When you drag gradient tint bars onto the page, the image will automatically reorient itself to the proper vertical or horizontal position, depending on whether you place it on one of the sides or on the top or bottom of the page.

To move gradient tint bars:

1. In the preview window, click the gradient tint bar you want to move, and drag it to the desired position on the page.
2. Release the mouse button.

   The gradient tint bar appears in the new position.

To remove gradient tint bars:

1. In the preview window, click the gradient tint bar you want to remove, and drag it off the preview page.
2. Release the mouse button.

   The gradient tint bar is removed from the page.

Using labels

The labels that appear on each separation tell the stripper which color separation it is and from which file. Normally, the labels appear on the top edge of the image. You can move the labels to any side of the image, or add more labels.

To add labels:

1. Click the label icon below the preview window and drag the cursor onto the preview page.

   When it enters the preview page area, the cursor turns into the label icon.
2. While still holding the mouse button, drag the cursor to where you want to add a label.
3. Release the mouse button.

   The cursor reverts to the arrow, and the label appears in the selected position.

To move labels:

1. In the preview window, click the label you want to move, and drag it to the desired position on the page.
2. Release the mouse button.

   The label appears in the new position.

To remove labels:

1. In the preview window, click the label you want to remove, and drag it off the preview page.
2. Release the mouse button.

The label is removed from the page.

IMPORTANT: DO NOT remove all labels from the separations before printing. Doing so will make it difficult, if not impossible, for the stripper to determine which separation belongs in which color.

Adding and removing trim marks

Unlike the other tags that appear below the preview window, trim marks cannot be placed anywhere you want. Trim marks will always snap to the dimensions of the bounding box. To change the position of the trim marks, you must first change the dimensions of the bounding box by clicking and dragging the sides of the bounding box in the preview window. Changes to the amount of bleed will not affect the trim mark dimensions.

To add trim marks:

1. Click the trim mark icon below the preview window and drag the cursor onto the preview page.

   When it enters the preview page area, the cursor turns into the trim mark icon.

2. While still holding down the mouse button, drag the icon to the bounding box dimension to which you want to add a trim mark.

3. Release the mouse button.

   The cursor reverts to the arrow, and a trim mark appears at the bounding box dimension closest to the point where the mouse button was released.

To remove trim marks:

1. In the preview window, click the trim mark you want to remove, and drag it off the preview page.

2. Release the mouse button.

   The trim mark is removed from the page.

After you have completed the procedures described in Chapters 5 and 6, your file is ready to send to the imagesetting device. Chapter 7, "Printing," describes the printing process primarily in terms of negatives because the primary purpose of the Adobe Separator program is to produce four-color separation negatives; however, all of the instructions in this manual also apply to positives and paper prints.

Printing color separation negatives

After you have set the printing parameters (see Chapter 5, "Separating Files"), and you have added or removed any elements in the Adobe Separator preview window (see Chapter 6, "Modifying Your Color Separation Negatives"), you are ready to print your separations. Although the processes described in this section also apply to positive film and paper prints, it is assumed that most people will be printing their separations as film negatives.

Within the Adobe Separator program, you are given a choice between printing all of the color separations, printing selected colors individually, or printing colors in combination with other colors. You can also convert custom colors to their process color components. (For more information on process and custom colors, see Chapter 3, "Assigning Colors with the Adobe Illustrator Program.")

After you have chosen the colors that you want printed, you can print the separate color components or save them as PostScript files.

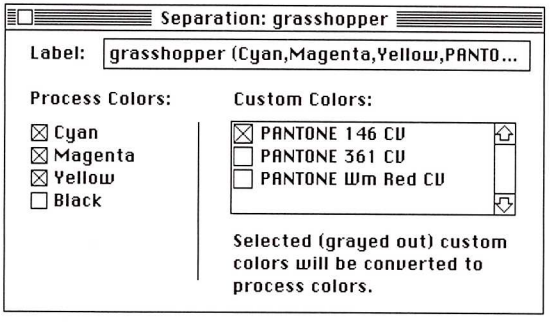
Converting custom colors to process colors

Before printing your separations, you must decide whether you want to print the custom colors in your illustration as separate ink colors or as colors created by the four-color process. For example, if your document contains a PANTONE 200 color component as well as the four process colors, printing it as separate colors will give you five negatives: cyan, magenta, yellow, black, and PANTONE 200. If instead you choose to print the PANTONE 200 color as part of the four-color process, you will end up with only four negatives; the PANTONE 200 will appear as 70-percent magenta on the magenta negative and 50-percent yellow on the yellow negative.

To convert custom colors to process colors:

1. Click the Separations button in the Adobe Separator window or choose Separations from the File menu.

   The Separation dialog box appears.



2. Select the custom colors you want to convert to process colors. If you make a mistake, click the selected color again to deselect it.

   Selected custom colors will appear grayed out in the Separation dialog box.

3. Choose Print All Separations from the File menu.

   The Printer dialog box appears.

4. Click OK.

> *IMPORTANT: The PANTONE colors available with the Adobe Illustrator program were designed to give the best color simulation on video displays and in comps from color printers. Although you can use the Convert-to-Process feature on these colors, the results may not match the original PANTONE colors exactly, but will vary depending on the calibration of the imagesetting device you are using.*

Printing all separations

When Print All Separations is selected, the Adobe Separator program will print all of the separations included in the document. The highlighted custom colors are converted to their process color components. Any custom colors that are not highlighted when Print All Separations is selected are printed as individual separation negatives.

To print all separations:

1. Choose Print All Separations from the File menu.

   The Printer dialog box appears.

2. Click OK.

> *NOTE: If there is no component of a process color in your document, that color will appear gray in the Separation dialog box. If, however, you have converted custom colors to process colors, the Adobe Separator program colors will print all four process color separation negatives, and any unused colors will print as blank negatives.*

Printing selected separations

Use the Print Selected Separations feature in the File menu when you want to print a specific separation or set of separations. With this feature, only the separations that you have selected will print. If you have custom colors highlighted to convert to process colors, the Adobe Separator program will convert those colors to the appropriate process color equivalents within the selected files.

To print selected separations:

1. Click the Separations button or Choose Separations from the File menu.
2. Select the colors you want printed as separations.

An x appears in each checkbox that is selected. If you make a mistake, click inside the checkbox again to deselect it.

NOTE: When selecting custom colors to print, be careful to click inside the checkbox next to the color you want to print. If you click on the name of the custom color, the color will be converted to its process color components.

3. Choose Print Selected Separations from the File menu.

   The Printer dialog box appears.

4. Click OK.

Saving all separations

When Save All Separations is selected, Adobe Separator will save to disk all of the separations included in the document. The highlighted custom colors are converted to their process color components. Any custom colors that are not highlighted when Save All Separations is selected are saved as individual separation negatives.

To save all separations:

1. Choose Save All Separations from the File menu.

   The Save PostScript File As dialog box appears with the first separation (usually cyan) listed in the Save PostScript File As field. If you wish to change the name, enter the new name.

2. Click OK.

NOTE: The Save All Separations feature will display the Save PostScript File As dialog box before every separation is saved. This allows you to enter a different name for each separation. If you do not choose a new name, the separation is saved with the default name that is listed in the Save PostScript File As field.

Saving selected separations

Use the Save Selected Separations feature in the File menu when you want to save a specific separation or set of separations. With this feature, only the separations that you have selected will be saved. If you have custom colors highlighted to convert to process colors, the Adobe Separator program will convert those colors to the appropriate process color equivalents within the files.

To save a selected separation:

1. Click the Separations button in the Adobe Separator window, or choose Separations from the File menu.
2. Select the colors you want saved as separations.

   An x appears in each checkbox when it is selected. If you make a mistake, click inside the checkbox again to deselect it.

3. Choose Save Selected Separations from the File menu.

The Save PostScript File As dialog box appears with the first separation listed in the Save PostScript File As field. If you wish to change the name, enter the new name.

4. Click OK.

Printing color comps

Before printing your color separation negatives, you can use a color printer to produce *color comps* of your artwork before it is separated. Although comps from a color printer should never be used as a substitute for prepress proofs from the printer, they are a handy way of quickly checking your work for any obvious errors.

The Adobe Illustrator program works with any color printer that contains a PostScript interpreter. Color results can vary, depending on the type of printer you are using.

To print color comps:

1. From the Adobe Illustrator program, open the Chooser desk accessory from the Apple menu and make sure that the color printer is chosen.
2. Open the document you want to print.
3. Choose Print from the File menu.
4. When the Print dialog box appears, check the settings and click OK.

You can also print color comps from within the Adobe Separator program. See "Printing Color Separation Negatives" earlier in this chapter.

IMPORTANT: As with color monitors, color printers can vary greatly in color reproduction quality. It is a good idea to compare your color comps to the final printed results. This will give you a clearer idea of the differences between the two media. Never try to adjust your colors based on the results of a color comp. The final printed results will almost always vary from the color comp results.

Section 3

*Color Guide. Guide de la Couleur.
Guida Colore. Farbreferenzteil.
Kleurenhandboek. Färgguide. Color
Guide. Guide de la Couleur. Guida
Colore. Farbreferenzteil. Kleuren
handboek. Färgguide. Color Guide.
Guide de la Couleur. Guida Colore.
Farbreferenzteil. Kleurenhand
boek. Färgguide. Color Guide.
Guide de la Couleur. Guida
Colore. Farbreferenzteil. Kleuren
handboek. Färgguide. Color
Guide. Guide de la Couleur.
Guida Colore. Farbreferenzteil.
Kleurenhandboek. Färgguide.
Color Guide. Guide de la Couleur.
Guida Colore. Farbreferenzteil.
Kleurenhandboek. Färgguide. Color
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Appendix A: *Troubleshooting*

Document won't print

Problem: Your document won't print. One of the following messages appears: "Limitcheck," "VM error," "The document is okay but cannot be printed," or "-8133."

Cause #1: Your imagesetting equipment does not have sufficient memory to print the file.

Solution: Under Preferences in the Edit menu in the Adobe Illustrator program, set the "Split Path Resolution" to 5080. This is the maximum resolution setting, and it will result in smaller amounts of data being sent to the imagesetter. Use an imagesetter with more available RAM, or print at a lower resolution.

Cause #2: Too many patterns or custom colors are included in the document.

Solution: Remove all unused patterns and custom colors from the document before sending it to the printer. Depending on the complexity of the patterns, this problem may occur with as few as three patterns.

Cause #3: Too many fonts are included in the document.

Solution: Reduce the number of fonts used in the document.

Cause #4: Illustration is too complex. This can be a combination of all the causes listed above. It can also occur when an Adobe Illustrator document contains many lines and objects.

Solution: In the Paint Style dialog box in the Adobe Illustrator program, increase the Flatness setting to four or greater for a 300-dpi laser printer; eight or greater for a high-resolution imagesetter. This option will subtly alter the appearance of your document and should be used only if necessary.

NOTE: Always make a backup copy of the file before changing the settings in your document.

Typefaces are printing as Courier or bitmaps

Problem: Typefaces used in your document are printing as Courier or as bit-mapped version of the desired typeface.

Cause: The imagesetter cannot find the PostScript information for the typefaces included in your document, and is using the Courier typeface or the bitmap versions of the typeface instead.

Solution: Make sure that the typefaces used in your document are in the System Folder, or download them onto the imagesetter's hard disk.

Streaks in the image

Problem: Streaks in the image area are most noticeable in the screened areas of negatives, where a screen tint that should be even in appearance is uneven and streaked.

Cause: The film has been developed improperly. This can occur if the film processor is set at the wrong speed, if the chemicals are mixed incorrectly, or both.

Solution: Notify the typesetting service or the technician who services your imagesetting equipment. Check the chemicals and the speed of the processor. If necessary, remix the chemicals and start over.

Negatives are too light

Problem: Light negatives often result in incorrect color values when the printing plates are made. Colors will appear darker than they should, and lines and type will appear fuzzy. To quickly check if your negatives are too light, place your hand behind the negative and look at it on a light table. If you can clearly see the outline of your hand through the negative, it is too light.

Cause: The laser intensity on the imagesetter is misadjusted.

Solution: Contact the technician who services your imagesetting equipment to correct the problem.

Bands in the screened areas

Problem: Screened areas, instead of appearing even, appear to be segmented into bands, or rows, of dots.

Cause: The laser on the imagesetter is misaligned.

Solution: Contact the technician who services your imagesetting equipment to correct the problem.

Wrong colors

Problem: The colors that appear in the printed work don't match the colors you have specified in your artwork.

Cause: The colors may be labeled incorrectly in the Paint dialog box, or the printer may have mixed up the negatives.

Solution: Double-check your work and then contact your print shop. If the negatives have been incorrectly labeled, the print shop can still use them as long as they are notified of the problem.

Moiré patterns

Problem: Moiré patterns are distracting patterns that ocur when different screen angles are printed on top of each other. These patterns have several different causes. Often the appearance of the pattern will give you a clue as to why it occurred.

Cause #1: Mismatched PPD file. The Adobe Separator program is using information from an incompatible printing device to set up the image.

Solution: Make sure the PPD file you use matches the printer.

Cause #2: The print shop rescreened the image.

This might happen if you gave your print shop paper prints instead of negatives. They may have decided that the dots were too small to reproduce accurately and have reshot the negatives using a halftone screen, causing a double-screened pattern. This problem will not occur as long as you print directly to negatives.

Solution: Never give the print shop paper prints to shoot from. Always print your separations directly to negatives.

Cause #3: The angles are wrong in the document.

This can only happen if you have changed the default angles in the PPD files. The PostScript Printer Description files have been set up to ensure the best results. They should be altered only by people who are familiar with both the PostScript language and offset printing. Any changes made to a PPD file should be made to a copy of the file, never to the original file.

Solution: Return the angles to their original settings and try again.

Blurry image

Problem: All the colors appear correct, but the image looks blurry or out of focus.

Cause: There are two probable causes of this: misregistration on the press and press slur. Both are print shop problems.

Solution: Notify the print shop. If the original image is sharp and clear, the job should be reprinted.

Wrong tint values

Problem: The tint values you have specified don't match the printed results.

Cause: The cause of this problem depends on where it first appears. The values might be wrong in the Paint dialog box. If the image is lighter than it should be, the negatives might be overexposed. If the prepress proof looks fine, but the image came out too dark or too light on the press, this might be a press problem.

Solution: Check the percentages in the Paint dialog box against the tint charts at the back of this book, and see if the results match. (They may not be exactly the same, but they should be close.) Check the progressive color settings (see Chapter 2, "Working with a Color Monitor"). Check the negatives on a light table with a magnifier. Are the dots sharp, or are they grayish? If they are grayish, notify your typesetting service or the technician who services your imagesetting equipment and have the negatives remade. If the proofs were fine, notify your printer, and have the job reprinted.

Shade stepping in graduated screens

Problem: Instead of appearing as a smooth transition, there is a noticeable jump between tint values in a blended area.

Cause: There are not enough machine pixels per halftone dot to create the necessary number of gray shades.

Solution: Make sure that your imagesetting equipment is set for the maximum number of dots per inch; using a lower line screen will also help. On a 300-dpi or 600-dpi laser printer, there is no cure for shade stepping because there are not enough dots per inch to avoid the problem. For more information on this, see "Specifying the Halftone Screen Ruling" in Chapter 5, "Separating Files."

Streaks off the ends of letters and objects

Problem: Instead of appearing as sharp outlines, objects appear smeared in the direction of the film travel path. The most common place this occurs is on letters and solid areas that appear on a screened background.

Cause: This problem is well known to printers. It is called *bromide lag*, and it occurs when the chemical balance in the film developer is incorrect.

Solution: Notify your typesetting service about the problem. If you are using your own imagesetting device, remix your developer chemicals.

Colors show through large, solid black areas

Problem: Large black objects that overprint other colors do not appear to cover the other colors completely. The shape of the other colors is apparent behind the black object.

Cause: The Adobe Separator automatically overprints all other colors with objects that are 100-percent black. Normally, this is a useful feature that eliminates many of the problems of trapping colors into black lines and type. The only time it becomes a problem is when a large, black solid overprints an area with two or more different colors behind it.

Solution: Add 15- to 30-percent tints of cyan, magenta, and yellow to the black. (Check with your printer on the exact percentages you should use.)

Ghosting

Problem: A faint image of other shapes on a page appears in the large solid areas on the page.

Cause: Ghosting occurs whenever a large solid is followed by another large solid of a different shape. The ink roller on most presses is smaller than the plate cylinder. Normally, this does not occur unless you are printing large areas of solid color.

Solution: Work closely with your print shop on this. They will be able to tell you if ghosting is a problem in your artwork.

Adobe Photoshop EPS files won't print

Problem: EPS files created with the Adobe Photoshop program won't open or won't print properly from the Adobe Separator program.

Cause: The Adobe Photoshop program lets you choose between different "modes." To separate your Adobe Photoshop files, you should convert your file to the CMYK Color mode before saving it.

Solution: Open your document in Adobe Photoshop and choose CMYK Color from the Mode menu. Choose Save As from the File menu and resave your document using the EPS format. After you click Save, the EPS Options dialog box appears. Select "Desktop Color Separation (5 Files)" and click OK.

Appendix B: *Adobe Separator Error Messages*

Generic Messages

Message: There isn't enough memory to continue. Quitting Adobe Separator.

Cause: Your system is out of memory. This can happen if you are working on a complex illustration or are running more than one program at once.

Solution: If you are running under MultiFinder or Switcher, quit from any other programs that you are running; then try restarting Adobe Separator and working with the document. If that doesn't work, turn off your RAM cache and restart. If there is still insufficient memory, you may have to specify Finder as the startup system and restart the system.

Message: There isn't enough memory to do this.

Cause: Your system does not have enough free memory to perform the specified operation.

Solution: Free up more memory, if possible, by quitting from other programs that may be running. Turn off your RAM cache and restart.

Message: There isn't enough memory to draw the preview picture.

Cause: The Adobe Separator program stores a preview image in memory while it is running. A color image takes more memory than a black-and-white image. This message may occur if you are working on a complex illustration or are running more than one program at once.

Solution: If you are running under MultiFinder or Switcher, quit from any other programs that you are running and try restarting Adobe Separator and working with the document. If that doesn't work, turn off your RAM cache and restart. If there is still insufficient memory, you may have to specify Finder as the startup system and restart the system.

Message: Preferences file out-of-date or damaged.

Cause: Either you are using the Preferences file from a previous version of the Adobe Separator program or the Preferences file has been damaged.

Solution: Throw away the Preferences file in your System folder and select Empty Trash from the Special menu. When you restart the Adobe Separator program, it will automatically create a new Preferences file.

Messages occurring with Open PS

Message: A value of "<numeric value>" is invalid for "<numeric field>."

Cause: You have entered a number that is beyond the possible range for that numeric field.

Solution: Try a different numeric value.

Message: The file "<file name>" isn't an Encapsulated PostScript file.

Cause: The document you are trying to open is not in the proper format.

Solution: Be sure that you are specifying the correct document name. The document must be written in the PostScript language.

Message: The file "<file name>" can't be read (<reason>).

Cause: Adobe Separator is unable to open the document for the reason stated.

Solution: See the list of reasons and solutions at the end of this appendix. Correct the error condition, if possible, and try again to open the document.

Message: The file "<file name>" may not print because it was saved in Illustrator using the "Omit EPSF Header" option.

Cause: Adobe Separator cannot print Adobe Illustrator files that are saved using the Omit EPSF Header feature in the Adobe Illustrator program.

Solution: Reopen the document in the Adobe Illustrator program and save it using one of the other preview modes (see Chapter 7, "Printing").

Messages occurring with Open PPD

Message: The file "<file name>" isn't a PostScript Printer Description file.

Cause: The file you specified is not a valid PPD file.

Solution: Be sure that you are specifying the correct document name.

Message: The file "<file name>" can't be read (<reason>).

Cause: Adobe Separator is unable to open the PPD file for the reason stated.

Solution: See the list of reasons and solutions at the end of this appendix. Correct the error condition, if possible, and try again to open the file.

Message: No PostScript Printer Description (PPD) file has been specified.

Cause: The Adobe Separator program requires a PPD file to open a document.

Solution: Open the PPD file that has the same name as the printer you are using.

Messages occurring with Print All and Print One

Message: The separation "<separation name>" can't be printed (<reason>).

Cause: The specified separation cannot be printed for the reason stated.

Solution: See the list of reasons and solutions at the end of this appendix. Correct the error condition, if possible, and try again to print the separation.

Message: The file "<file name>" can't be read (<reason>).

Cause: The file cannot be read for the reason stated.

Solution: See the list of reasons and solutions at the end of this appendix. Correct the error condition, if possible, and try again to print the separation.

Messages occurring with Save One

Message: The file "<file name>" can't be written (<reason>).

Cause: The program is unable to save the file for the reason stated.

Solution: See the list of reasons and solutions at the end of this appendix. Correct the error condition, if possible, and try again to save the file.

Reasons associated with error messages

Reason: Access privileges error

Solution: You do not have sufficient privileges on the network to perform the operation. Speak with your network administrator.

Reason: AppleTalk communication error

Solution: Check your AppleTalk connections carefully. Make sure the printer is turned on. If everything seems to be connected properly, speak with your network administrator.

Reason: Disk error

Solution: Your disk may have become corrupted. Try the operation again. If it still does not work, try shutting down the computer and restarting it by turning the power off and then on again.

Reason: The disk is full

Solution: On a hard disk, delete unneeded files and then try the operation again. On a diskette, either delete unneeded files or insert another disk and then try the operation again.

Reason: The disk is locked

Solution: Be sure that you want to make changes to this disk. If you do, eject the disk, slide the small tab away from the edge of the disk, reinsert the disk in the drive, and try the operation again.

Reason: The file is busy

Solution: The file is open on another computer on your network. Speak with your network administrator.

Reason: The file is locked

Solution: The Locked box in the file's Info dialog box is checked. From the Finder's desktop, select the file's icon and choose Get Info from the File menu. Click in the Locked box to unlock the file.

Reason: The file is missing

Solution: Speak with your network administrator.

Reason: The server is no longer connected

Solution: The file server may have crashed or have been taken offline. Speak with your network administrator.

Reason: The PostScript program caused an error

Solution: PostScript language code in the file is not compatible with the Adobe Separator program. Talk to the program's developer. This error may also be caused by an out-of-memory condition.

Reason: The printer is no longer connected

Solution: Check connections carefully, or speak with your network administrator.

Reason: The printer is not available

Solution: The printer currently specified in the Chooser is not available. Specify another printer, or speak with your network administrator.

Reason: Unknown error

Solution: It is not clear why the operation cannot be performed. Try the operation again. Restarting the system might help.

Suggested Reading

Basic Law of Color Theory, The

Harald Kueppers. Woodbury, New York: Barrons, 1980.

This definitive book on color theory is translated from the German language. Although it is extremely technical, it is nonetheless a valuable resource for all kinds of information on color. Hardback and paperback.

Comprehensive Graphic Arts

Ervin A. Dennis and John D. Jenkins. Indianapolis: Bobbs-Merrill, 1983.

This book is intended for school use, but it gives a thorough overview of the various printing processes. It includes step-by-step explanations of every facet of printing, from copy preparation to binding. Hardback.

Designer's Guide to Color, Volumes 1, 2, and 3

Ikuyoshi Shibukawa, Yumi Takahashi, James Stockton, and Jeanne Allen. San Francisco: Chronicle Books, 1984, 1986.

These three books are designed to help you avoid the unexpected surprises that often occur when colors are placed next to one another. The first two volumes consist of various swatch combinations of two and three colors. The third book contains more complex swatch patterns with up to six colors. Each swatch lists the process screen tint values used to create it. Paperback.

Getting It Printed

Mark Beach, Steve Shapiro, and Ken Russon. Portland: Coast to Coast Books, 1986.

Subtitled "How to Work with Printers and Graphic Arts Services to Assure Quality, Stay on Schedule, and Control Costs," this is currently the best and most up-to-date book on printing and the graphic arts. It includes an exhaustive glossary and bibliography, plus sample printing quotation forms. Available in hardback and paperback.

Graphic Designer's Handbook

Alastair Campbell. Philadelphia: QED Publishing Limited, 1987.

Originally printed in Britain, *Graphic Designer's Handbook* is a wealth of information for the graphic artist. It includes an excellent section on color printing as well as tint charts. Hardback.

Graphic Designer's Production Handbook

Norman Sanders. New York: Hastings House, 1982.

One of the few graphic design books written with the limitations of the printing process in mind. It is virtually a checklist of the things graphic designers often overlook when preparing their work for the printer. A must. Paperback.

Graphics Master 4

Dean Phillip Lem. Los Angeles: Dean Lem Associates, 1989.

This is less a book than a bound collection of virtually every tool and fact you might need when designing something to be printed. It contains a proportion wheel, tint charts, type charts, printer information, and much more. Hardback. (Updated every few years.)

Lithographer's Manual, The

Raymond Blair and Charles Shapiro, editors. Pittsburgh: The Graphic Arts Technical Foundation, Inc., 1980.

This massive volume covers everything from the invention of lithography to the comparative viscosity of different inks. Interesting and thorough, but not recommended for the novice. Hardback.

Pocket Pal

Michael Bruno, editor. New York: International Paper Company, 1983.

The bible of the graphic arts world, this nifty little paperback covers every aspect of the printing industry, from typesetting and copy preparation to printing and binding. It also includes a history lesson on printing. A must. Paperback. (Updated periodically.)

Print Production Handbook

David Bann. Cincinnati: Quarto Publishing Ltd., 1985.

Similar in content and style to the *Graphic Designer's Handbook*. This volume contains less on graphic arts and more on all aspects of the printing process. Hardback.

Production for the Graphic Designer

James Craig. New York: Watson-Guptill Publications, 1977.

A brief tour of the entire printing process, from typesetting to paper milling. Expressly written for graphic designers to help them avoid problems when getting their work reproduced. Although much of the information is now dated (particularly the section on typesetting) the book is still a valuable resource. Hardback.

Small Offset: Preparation and Press

Les Crowhurst and Peter Burton. Pittsburgh: The Graphic Arts Technical Foundation, Inc., 1983.

Published by the Graphic Arts Technical Foundation (GATF), this book is dry reading but offers a quick nuts-and-bolts rundown of the offset process. It gives a behind-the-scenes look at the guts of a print shop, telling how they work and why they do things certain ways. Also covers the basics of copy preparation. Paperback.

Glossary

The words listed in this section are ones that either appear in this manual or are often used within the printing industry. More information on all of the terms or concepts listed here is also available in many of the books discussed in the suggested reading.

additive primary colors Red, green, and blue. The three colors used to create all other colors when direct, or transmitted, light is used (television, for instance).

Benday An old printing term for screen tints. Taken from the name of a company that used to produce screens for the printing industry.

blueline A prepress proofing material, used to proof black-and-white art before printing.

CMYK Shorthand notation for cyan, magenta, yellow, and black.

coated stock Paper that has a light clay or plastic coating. A glossy or slick paper is coated. The color you want often depends on the type of stock on which you are printing.

Color Keys A color overlay proofing system produced by the 3M Company. *See* overlay proofs.

comp A graphic arts term for comprehensive drafts. In Adobe Illustrator, a paper proof printed on a color printer before you print the final negatives is the equivalent of a comp.

Cromalin An integral proofing system produced by DuPont. *See* integral proof.

custom color Color created using printing inks in PANTONE colors or special ink mixes, instead of process colors.

dots *See* halftone dots *and* pixels.

Dylux A brand name for blueline proofing material.

emulsion The photosensitive layer on a piece of film or paper.

folio Page number.

ghosting The shift in ink density that occurs when large, solid areas interfere with one another.

gripper The top part of a page where the printing press grabs the paper. Nothing can be printed in this area.

halftone dots Dots as they appear on the printed page. The size of the halftone dots depends on the screen ruling used.

integral proof A color proofing system that bonds all four process colors to a single sheet.

knockout A generic term for a positive or overlay that "knocks out" part of an image from another image. The most obvious example of this is white type on a black background. The white type is knocked out of the background.

landscape A horizontal printing orientation in which the top of the page is one of the long edges of the page. Compare *portrait.*

lines per inch (lpi) *See* screen ruling.

mechanical separations Color separations based on black-and-white art.

moiré pattern The distracting and unattractive pattern that occurs when two or more screen tints are overlaid incorrectly. *See also* rosette.

offset To move the image away from the right edge of the film or paper on which it is printing.

offset printing A type of printing that uses an intermediate step to transfer a printed image from the plate to the paper.

overlay proofs A color proofing system that uses transparent overlays for each of the four process colors.

overprint To print a color so that another color falls on top of it.

PANTONE MATCHING SYSTEM A popular system for choosing colors, based on ink mixes.

pixels The individual dots a printer uses to create each halftone dot.

portrait A vertical printing orientation in which the top of the page is one of the short edges of the page. Compare *landscape.*

PPD file PostScript Printer Description file. The document used by the Adobe Separator program to set the default information for the type of printer you are using.

process separations Four-color separations made from color artwork.

progressive color bar A bar displaying all the possible combinations of cyan, magenta, and yellow. Progressive color bars are printed on each sheet of a process-color printing job to ensure proper ink coverage and color. The bar is usually trimmed off before the job is shipped. Sometimes the progressive color bar will also include black and screen tints of the combinations.

reflected light *See* subtractive primary colors.

resolution The clarity with which an image can be reproduced. The resolution of an Adobe Illustrator image depends on the device to which you are sending the file. The resolution of PostScript language imagesetting devices (LaserWriter Plus, Linotronic 300, and so on) is measured in pixels per inch. *See also* pixels.

RGB Shorthand notation for red, green, and blue. *See* additive primary colors.

rosette The circular dot pattern that occurs when screen tints are overlaid correctly.

screen ruling The number of lines per inch in a screen tint or halftone.

screen tint A screened percentage of a solid color.

shrink A positive image that has been reduced in width to create trap.

spec sheet A mock-up, or copy, of a drawing showing the various color values.

spot color *See* custom color.

spread A negative image that has been fattened to create trap.

stripper The person who takes the negatives and "strips" them in the proper position so that they will run correctly on the press. The stripper is also usually the person who cuts the color-separation masks when mechanical separations are made.

subtractive primary colors Cyan, yellow, and magenta. The three colors used to create all other colors when reflected light is used (for instance, in printed material).

transmitted light *See* additive primary colors.

transverse Rotation of the page on the film or paper on which it is printing. Currently, this term is applicable only to Linotronic typesetting machines.

trap Overlap needed to ensure that a slight misalignment or movement of the separations will not affect the final appearance of the job.

uncoated stock Paper that is not coated. Uncoated paper is usually less smooth and absorbs ink more readily.

Index

Colophon

Documentation

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